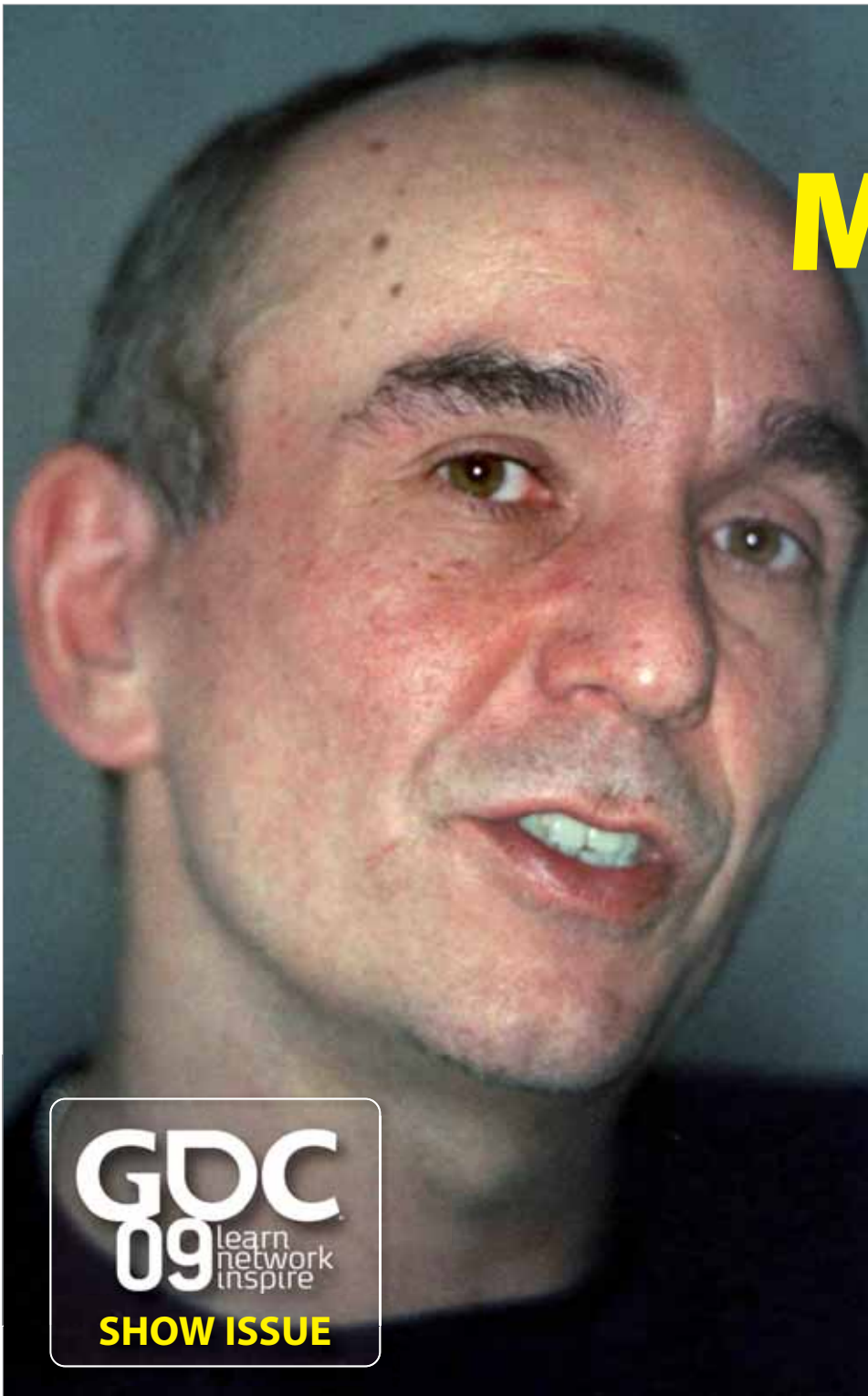


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Molyneux up close

The Lionhead chief's most
personal interview yet

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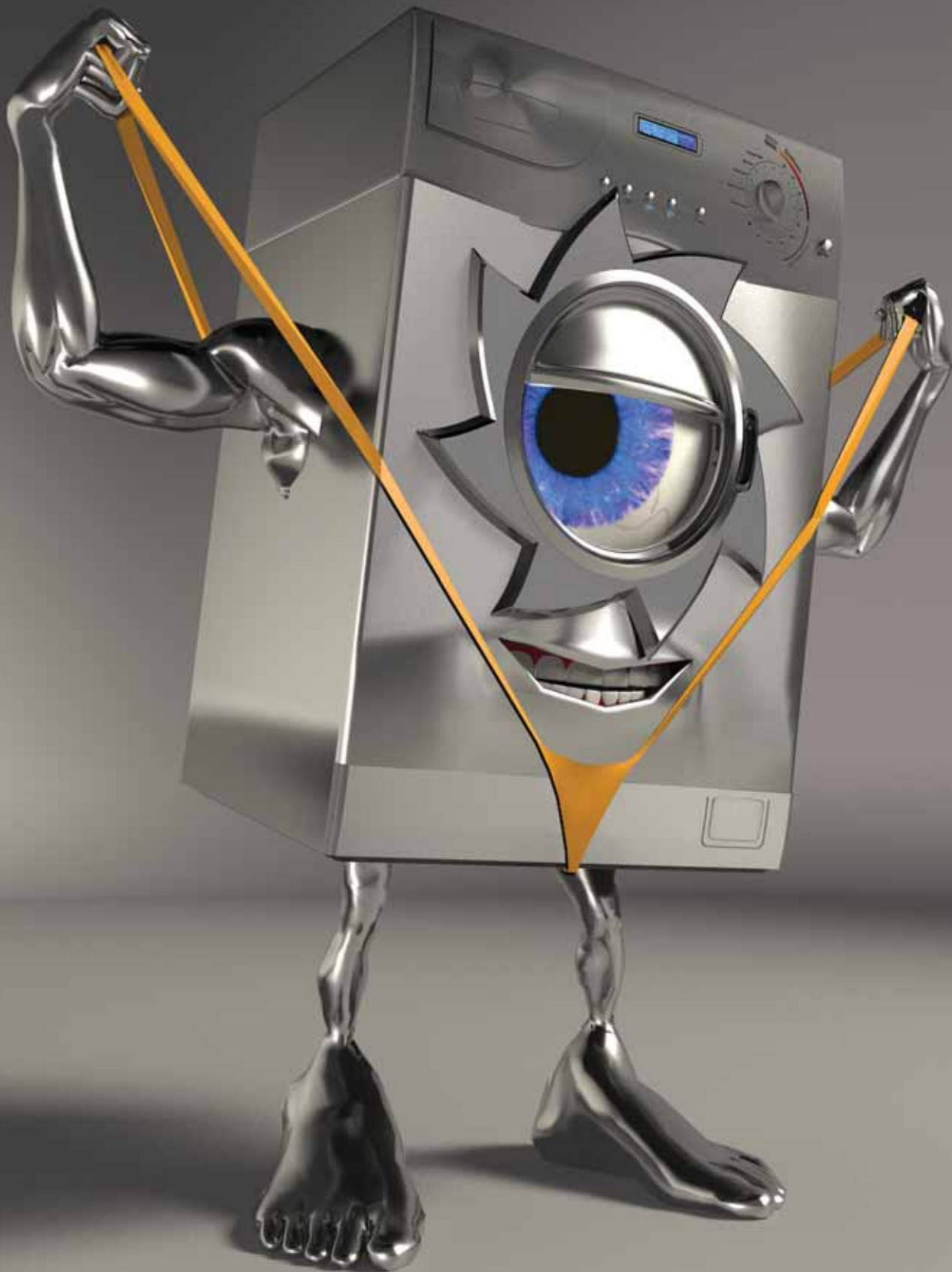
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ALPHA

ADVENTURES IN GAMES DEVELOPMENT: NEWS, VIEWS & MORE

"Far too often I see games ruined by making a complete arse of the control setup..."

Billy Thompson, Ruffian Games, p18

Jones keynote at Develop conference

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Big build up for Game Connection

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Event Preview: GDC 2009

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Developers turn to Twitter

Infinity Ward uses it for feedback, David Perry uses it for gossip – the latest web craze has caught developers' eyes

by Michael French

Web site of the moment Twitter.com is fast finding a place in the hearts of developers.

And not just because it's fun to track the minutiae of how high profile users like Stephen Fry, Jonathon Ross or Lily Allen live their lives.

While the site has been around since 2006 only now is it registering on retinas. It's not just being embraced by retailers in every sector – from computing to bicycles – but creatives in the games industry are using it to air views or contact fans. And those that do are reaping the first-mover rewards. These rewards are not yet in cash, but are grabbing an early user base which, in Twitter-speak, is 'followers'.

Twitter is a conversational social site, demanding users make short postings of just 140 characters via their computers or via mobile phones. Follower lists of friendly Twitter users appear in your feed – and yours in theirs.

Twitter was founded by Jack Dorsey, Biz Stone, and Evan Williams of San Francisco podcasting company Odeo. Angel funding investors include Jeff Bezos of Amazon. The California-based site reportedly turned down a \$500m all-stock offer from Facebook late last year. Tech industry insiders believe the company – yet to turn a cent – is holding out for a better offers.



Stone told *Develop*: "Twitter helps people find out what is happening right now whether it's among a group of friends or the whole world."

"As a real-time network of information, Twitter is becoming a relevant tool to more and more people every day."

There are some famous cases of Twitter aiding businesses. From an independent coffee shop in Houston, Texas which doubled clientele by inviting followers to meet-up at the coffee shop, through to Dell running a site-specific promotion that gave it over \$1m in Twitter-trackable sales.

While it has even aided the non-game development community – spawning legions of third-party apps for power-users making money as iPhone Apps sold through iTunes – the

real draw is in reaching games players and engaging them in conversation.

Call of Duty creator and developer Infinity Ward is one such company.

The studio's Robert Bowling runs its twitter.infinityward.com site, which has been courting users for short-form ideas for *Modern Warfare 2*.

"Twitter puts your players in the studio with you and makes them part of the brainstorming session as it happens. It's a conversation w/o PR," he tells *Develop*, economically sticking to the 140 character limit.

Clearly for developers and businesses, as a way of testing a market concept or pushing out an exclusive, time-sensitive offer, Twitter seems to be quicker than RSS, broader than SMS and more immediate than websites

“Twitter puts your players in the studio with you.”

Robert Bowling,
Infinity Ward

or wikis for all the businesses using it.

It's also good for chat – or even gossip. Veteran designer David Perry whipped the media into a frenzy by posting details about a UMD-less PSP.

He told us: "Twitter is an amazing tool. Over the coming years consumers will continue to steer the future, we can ignore that fact, or embrace it."

And it's fitting that a site forcing users to be economic with language is popular at a time when the games business and global economy is facing frugality.

One expert said told us Twitter is useful for any company conducting marketing in a recession: "Dwindling budgets suddenly make low-cost social media look like the pretty girl at the ball."

Editorial

Time for a change

I'm a terrible games designer; I've learnt to stop ruining people's lives; I don't run into the office with a hangover and crazy ideas any more.

Not my words, but Peter Molyneux's in this month's cover feature. I've been lucky enough to interview Peter many times – like lots of other journalists; he's simply that prolific a speaker and always chatty. But never before has he given an interview so frank and revealing, devoid of hype or PR.

You can skip straight to it on page 30. But if you haven't yet and want a taster: it's all about evolution and rolling with the punches – and knowing when to punch back.

Molyneux has always been an archetype for boundary-pushing developers – indeed, he admits to us this month that this is still Lionhead's ethos. But this month our interview also shows him as a more responsible developer. It couldn't be more archetypal a position for developers the world over.

Publishers are tightening belts, cutting projects and internal resource – and, the biggest crimes many developers are guilty of, arrogance and gluttony – has sparked motivation for professional change amongst the world's studios.

Realtime Worlds' Dave Jones in Dundee, Scotland is doing it by switching his team to a server-based game studio unrelentant on publishers. So too is Infinity Ward's Robert Bowling in California, USA, who is letting Twitter users shape the direction of *Modern Warfare 2*.

(So too has *Develop*, which this month you might notice has a nice new font and some other minor design tweaks.)

EVOLUTIONARY GAINS

There is a phrase I as a journalist hate being given in interviews with developers. 'It's evolution not revolution' – which usually means 'I'm masking a lack of real progress with a rhyme'.

At the moment, however, that hackneyed phrase rings true: the games business is evolving, not about-turning, at a clip. But not because of any single motivating force, but because everyone is looking to roll with the punches, be they financial, creative or both. It's mass movement, with everyone now looking to new channels and avenues for games development and the games business, perhaps on Twitter or via self-funded large-scale online games, as Bowling and Jones suggest.

After years peddling the familiar, Wii, iPhone and browser games have put wind in the sails of games developers once again looking to be frontiersmen of the world's most engaging form of entertainment. Apt for a world where masses of user reviews – hundreds of single voices coalescing into one whole – can make or break an iPhone App within days.

Even the big boys are swept up in it. As I write this, EA Sports has just announced that its next basketball game is a download exclusive. Rapidly switching to embrace these channels with open arms might not be the only change at the EA business either – but more on that next month. A fat, easy target Electronic Arts may be, but when a behemoth like that is course-correcting its strategy so quickly and cottoning on, you just know the rest of the industry is undoubtedly evolving with it, too.



Michael French

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Michael

Jones to deliver

Realtime Worlds founder and GTA creator to open July's Develop



by Michael French

Undoubtedly, Scottish developer Realtime Worlds is one of the most closely-watched studios in Europe.

After winning fans with 360 title *Crackdown*, the studio scored millions in VC funding and declared its intention to focus solely on a new MMO, *APB* – all while rumours of a non-RTW-developed *Crackdown* sequel swirled.

The transition from console only to online only developer is an interesting one, and now Dave Jones, the studio's founder – and also creator of *GTA* franchise – is now set to talk through the challenges this new business model offers at the Develop Conference. Jones will be providing a keynote lecture at the event, which takes place from July 14th to 16th in Brighton.

We caught up with him to find out more about his talk and his views on UK games development...

What attracted you to talking as Develop in

Brighton's keynote speaker this year?

Well, for a start we have had a busy year with *APB*, and then secondly a lot of people have been asking me recently what we have been doing differently in recent years, and what we have been doing differently now that we have external finance instead of publisher financing. We've made it publicly known that all the games we are developing are server-based, as well. So a lot of people have been asking me about the studio – and I thought this would be a great way to tell people what we have learned over the past couple of years.

The overall theme of the talk will be that we are one of the developers that has transitioned – we took a major change in direction from what the industry normally does, and I'll be talking through that. The trials and tribulations of going to self-funding, making a game completely server-based... there are some interesting things to talk about.

It's been a big step for us. It's been a big leap of faith for

both myself and the rest of the staff. A lot of technical challenges needed to be overcome. It sounds fairly straightforward on the outside, but hopefully I can talk about some of the issues we've faced internally from such a big change of direction.

There has been some turmoil in games development of late with a lot of studio closures. What are your thoughts on the UK's scene?

It's a shame – there is a lot of contradiction out there. 2008 in terms of retail revenue was the best year ever. And yet you sit down, scratch your head and think – why is it that some studios are facing problems? Part of it is a redistribution of wealth within the games business. There are a lot of second hand sales of games, while all the hit players take all the revenue – you have to look at the industry and think where is the year-on-year growth we all talk about. So a lot of it is in retail, a lot of it is in second hand, and only the top ten games make any money while the 900 other games that were released

Brighton keynote

Conference with talk discussing the industry's move to server-based games



Brighton's Hilton Metropole Hotel, location of the Develop Conference, and Dave Jones of Realtime Worlds (inset)

suffer. And in online a lot of the subscription money out there goes into Blizzard's pockets. There's a lot of people inside the industry asking where exactly these revenues are being spent – that's how we've looked at it and making sure we are in the areas where consumer dollars can be captured.

Was that why Realtime Worlds has gone without publisher funding – to protect yourselves from those kind of problems?

Yeah, the usual value chain reasons. *Crackdown* reviewed well, and sold at reasonable numbers, but we didn't make any money out of it. And you sit there after that and scratch your heads and ask 'what are we doing wrong?' That led to a fair bit of soul searching. It is difficult out there. You need to have big, big sellers to recoup the investment made in games these days – you have to be in the right position to benefit from all those revenues in the traditional market. Or you can try something different and capture more of the end user dollars.

Do you think other studios will switch to the online-focused model you are advocating?

I don't know – I'd say it was as expensive and risky in its own right. It's a tough choice for anybody right now. In some respects also it is still a new thing today – we do have one or two major big hits, but not much else in the online space.

So developers are facing two choices. You either aim big and aim for the console space and make sure you are definitely, definitely making a two to three million seller. Or you go into the online space, but you have to know what revenue model you want for it, where the content is coming from, and where the money is – which is predominantly in MMORPGs.

Really, there is no easy answer to all that – that's one of the things I will talk about as there are plenty of pitfalls in the online space as well. But at least, the way I look at it, is that if you do make it in online, it's just you and the consumer. So it's in your control. There's no chance of a publisher who has its own

problems and shuts down funding, or just loses faith in the project. At least it's getting closer to the consumer – and that's what I've really been pushing for. And also, if things don't work it's down to you, and there is no one else to blame but the developer.

Lastly, how is APB progressing?

Really well, and I'm really reluctant to talk about it – the idea has been to keep it under wraps so that when we talk about it properly people really understand it and know what the game is.

We've been lucky, like I say, to have funding which allows us to iterate, try things out and push out some new things in gaming. But it is going really, really well and enjoyable to work on something new – and that's what really turns me on about making games. We'll definitely be talking about it later on this year – and I plan to show the risky areas of working on it, and how APB is innovating when down in Brighton. I've got lots of great material to talk about and show.

And the rest...

Dave Jones isn't the only confirmed speaker for Develop in Brighton this year. Here's the rest of the sessions and speakers confirmed so far...

Driving 3D TV's Using Current Generation Consoles
Andrew Oliver, Blitz Games

Online Games, Virtual Worlds and MMOs: Raising Money and Making Money
Paul Flanagan, Ariadne Capital

How to Staff and Manage a Flexible, Scalable Development Facility
Simon Gardner, Climax Studios

Usability Testing for Videogames
Jason Avent, Disney and Graham McAllister from Sussex University

How to Communicate with Artists
Arran Green, Sony Computer Entertainment Europe

Painting With Sound: The Future of Procedural Audio
Andy Farnell

Gold Blend: Audio Code and Design Working Together for the Perfect Flavour
Steve Emney & Ciaran Rooney, Disney Black Rock Studio

Taking Your Game to iPhone and Android, Without Killing Your Team
Chris White, Glu

Legal Consequences of User Generated Content
Tahir Basheer, Sheridans

20 Great Innovations in Casual, Social and Mobile Games That You Should Steal
Stuart Dredge, Pocket Gamer

10 Things Nobody Tells You About Digital Distribution and Self-publishing That You Must Understand to Succeed
Martyn Brown, Team 17

How Today's Social Networks Will Change How You Make, Play and Sell Games Tomorrow
Kristian Segerstrale, Playfish

Panel: Meet the Social Networks
Tom Armitage; Limvirak Chea, Google; Gareth Davis, Facebook; Chris Thorpe, MySpace

Make a million at Game Connection

This month's key business networking event at GDC promises to connect developers to publishers – and, even better, to good deals

by Micheal French

The organisers of this month's Game Connection America are promising plenty of quality face time between attendees and key business decision makers.

The sixth annual version of the B2B event in the US has attendees from around the world, with over 220 exhibitors set to attend.

The gathering takes place from March 24th to 26th, running along side the Game Developers Conference at the San Francisco Moscone Center.

"With an average \$1 million generated by the event for our exhibitors, Game Connection is today perceived by most as the best choice for developers and services companies," said Pierre Carde of organiser Connection Events.

"Every year we are very pleased to welcome the major, and the less major, publishers and developers of the video game industry. 95 per cent of the top 20 publishers will be there, some of them with five teams, each of them focused on a specific segment or need. But developers and outsourcing companies do not only want to meet with the major players. The global growth of the industry has opened the way to the rise of more national and regional

players, very active on their playground and able to generate significant revenues for companies opened to regional or local deals. And the newcomers of the casual, online or mobile phone market are also eager to sign great projects.

"Size is not the issue here; it's more about meeting the right partner. And this is what our speed dating system provides."

The event offers attendees access to an online meeting system which promises to be exhaustive – and not just in terms of the number of exhibitors listed.

Said Carde: "What people should expect from Game Connection is that they will be happy but tired at the end of the event, because 30 meetings in a row can be exhausting. But the efficiency associated compensates for it."

He added: "We have built a solid reputation in the industry and have a lot of participants who come back year after year. The newcomers mainly hear about the Game Connection thanks to very good word of mouth. We have a really high satisfaction rate and we work hard year after year to meet the needs of the industry. No other event is solely focused on business like Game Connection, and it has become the 'must-



attend' event for business-focused professionals of the international industry."

www.game-connection.com

For more on GDC, check out our preview on pages 25 to 26.

Game Connection offers exhibitors the chance to organise many private meetings with publishers, developers or service firms

DEVELOP DIARY

YOUR COMPLETE GAMES DEVELOPMENT
EVENT CALENDAR FOR THE MONTHS AHEAD...

GDC 09
learn
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inspire
www.GDConf.com

GDC 09

March 23rd to 27th
San Francisco, US
www.gdconf.com

The Game Developers Conference returns to San Francisco's Moscone Centre, which will play host to the world's biggest gathering of developers, tool producers and service providers.

This year will see keynotes from Nintendo president Satoru Iwata, and Metal Gear Solid creator Hideo Kojima. Other speakers include Lionhead's studio head Peter Molyneux, DSi project leader Masato Kuwahara and Bioware's studio co-director Gordon Walton.

GDC 09 also features numerous summits, satellite events and tutorials, making it an essential date on the calendar for anybody employed in the video game industry.

MARCH 2009

GAMES GRADS 09 – NORTH

March 17th
Manchester, UK
www.gamesgrads.co.uk

GAMES GRADS 09 – SOUTH

March 19th
London, UK
www.gamesgrads.co.uk

IGAMES SUMMIT

March 19th
San Francisco, US
www.igsummit.com

ELAN AWARDS

March 20th
Vancouver, Canada
www.theelans.com

GDC 09

March 23rd to 27th
San Francisco, US
www.gdconf.com

GAME CONNECTION AMERICA 2009

March 24th to 26th
San Francisco, US
www.game-connection.com

APRIL 2009

MCV INDUSTRY EXCELLENCE AWARDS

April 23rd
London, UK
www.mcvuk.com/events

MAY 2009

LOGIN 2009

May 11th to 14th
Seattle, US
www.2009.loginconference.com

GDC CANADA

May 12th to 13th
Vancouver, Canada
www.gdc-canada.com

NORDIC GAME 2009

May 19th to 20th
Malmö, Sweden
www.nordicgame.com

MCV/XBOX 360 PUB QUIZ

May 21st
London, UK
www.mcvuk.com/events

JUNE 2009

E3

June 2nd to 4th
Los Angeles, USA
www.e3expo.com

GAMEHORIZON CONFERENCE

June 23rd to 24th
Newcastle, UK
www.gamehorizonconference.com

JULY 2009

DEVELOP CONFERENCE 2009

July 14th to 16th
Brighton, UK
www.develop-conference.com

DEVELOP INDUSTRY EXCELLENCE AWARDS

July 15th
Brighton, UK
www.developmag.com/events

CASUAL CONNECT SEATTLE

July 21st to 23rd
Seattle, US
www.develop-conference.com

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WorldView

Our monthly digest of the past month's global games news...



DEALS

Electronic Arts has signed up American McGee's **Spicy Horse** to make a new game in his *Alice* series.

Konami has signed up **Climax** to produce two new titles – one for the DS and one for the Wii.

Also, **Konami** has reportedly snapped up the rights to the **Zombie Studios**-developed tie-in based on the *Saw* movies horror.

Headstrong Games has revealed that it has used **Blitz Games'** BlitzTech to make its *House of the Dead: Overkill* Wii game.

And, still on a horror theme, **Capcom** has chosen Canadian outfit **Blue Castle Games** to make the next game in its *Dead Rising* franchise.

Reborn publisher **Acclaim** is using **Vivox's Voon** for 'massively multiplayer group' chat in its latest titles.

Valve's Steam continues to wow the industry: **Square Enix** is the latest to offer its PC titles through the service.

Warner Bros. is showing now let up in its aggressive games plans: the Hollywood studio has bought Seattle-based **Snowblind Studios**.



WHO YOU GONNA CALL?

THANKS TO Atari's rescuing the game from development hell, Terminal Reality's *Ghostbusters* tie-in – pimped as the 'third movie' in the comedy series – will see release in the summer as part of the franchise's anniversary celebrations.

Now the studio wants to use the game not just as a touchstone for the brand, but also as a calling card for its technology, now available for third party licensing.

The Infernal Engine 'offers excellent cross platform support and is compatible with all of the leading gaming systems as well as the PC' the studio says. Behind-closed-doors demonstrations have showcased the engine using a character from the studio's 1999 property *Nocturne*.

And momentum behind the technology isn't an apparition, either – six studios have already licensed the tech including Escalation Studios, Threewave Software, Red Fly Studio, Wideload Games, Piranha Games, and SpiderMonk Entertainment.

SINGAPORE

KOEI LOOKS TO DOUBLE SIZE OF ASIAN DEV TEAM

While Japanese publisher Koei is seeing consolidation soon – it plans to merge with *Dead or Alive* developer/publisher Tecmo in April – it is also expanding, with plans to double the size of its Singapore studio.

The firm will add 60 more staff to the studio in the Asian city state. These new staff will be added over the next two years, joining 50 staff already at the studio.

"We will not be satisfied until we further strengthen the development capabilities of the Singapore studio, both in quantity and in quality," said Koei co-founder Keiko Erikawa at a press conference.

"Our objective is to groom a pool of talented and passionate developers who want to do Singapore proud and work relentlessly towards creating best-selling titles," she added.

www.koei.com

USA: TEXAS

ENSEMBLE VETERANS DISASSEMBLE, REASSEMBLE

After almost 15 years in business, Microsoft-owned Ensemble Studios has closed after its shutdown was detailed last year.

However, the staff from the team have mostly found gainful employment elsewhere – with the workforce regrouping to found new studios Robot Entertainment and Bonfire Studios.

Robot is headed by Ensemble founder Tony Goodman. The team is currently working on additional content for *Halo Wars* and support online gaming and community for *Age of Empires* – the two games it created while Ensemble – while also developing its own original IP.

Bonfire, meanwhile, is a 35-person team is based in Dallas, and is currently working on an original IP to be announced within the next few months.

bonfire-studios.com; robotentertainment.com

SOUTH KOREA: SEOUL

ALLEGORITHMIC SEEKS SEOUL'S HIGH CALIBRE

Middleware provider Allegorithmic has opened a new office in Seoul, South Korea.

The move marks the start of company subsidiary Allegorithmic Korea, which is designed to establish a presence in the country. Allegorithmic is attempting to extend its business into the Asian markets and enable support in the territory for its ProFX and Substance technology solutions.

www.allegorithmic.com

UK: BRIGHTON

LAU-KEE BACKS NEW START UP KERB GAMES

Not content with lending his backing to Unity, David Lau-Kee is also working with a new studio based on the UK's South Coast.

Kerb Games is to focus on developing next-generation, persistent browser-based

releases that are designed to move players from the traditional hardcore online gaming model to networked and community-oriented spaces. The studio is a spin-off of digital engagement agency Kerb, which Jim McNiven formed in 1996. McNiven is considered by many to be a leading force in the viral games movement and now assumes the CEO position at Kerb Games

"The games industry has for too long relied on either accident and circumstance or imported IPs and outrageous marketing spends to generate its hits – user engagement is either random or paid-for," added Lau-Kee. "At Kerb we're applying years of experience of web analytics, viral marketing and web community development to truly engage with our audience – our games are ground-up designed for the web-connected, Games 3.0 generation."

www.kerbgames.com

FRANCE: PARIS

CRITERION VET FORMS NEW FRENCH STUDIO

Former Criterion Software staffer Oskar Guilbert has formed a new studio, Dontnod Entertainment.

The firm has been co-founded by Guilbert together with art director Aleksi Briclot and award-winning science fiction author Alain Damasio. Targeting 'far-reaching cross media products', the team has already won the French Innovative Companies Competition prize for real-time 3D fluid simulation tech.



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Our online resource features news, features, analysis and commentary posted daily, and is available via the web, mobile, RSS and daily email and news alert blasts.



ZEEMOTE LAUNCHES GLOBAL DEV CONTEST

MOBILE GAME hardware firm Zeemote has teamed up with Develop to launch a global game development competition based around its JS-1 analogue controller.

The controller, which has already launched in seven territories in the past year, brings analogue control to Bluetooth-compatible mobile handsets – and it's here that we want to see you shine.

Zeemote is on the look out for games that fully utilise the analogue controller in innovative ways, and is ponying up a 'substantial' prize for the team that develops the most impressive title. In addition, the game will be branded 'Zeemote Ready' and given global recognition by the firm.

Develop will be playing an active part in the global search and judging process, and we'll be keeping you informed as the contest progresses, both in the magazine and at **developmag.com**.

Zeemote will be hosting a party at GDC to kick off the competition and reveal more details, which you can register for at

www.zeemote.com/ZeemoteReady – or you can check out visit the Zeemote stand at GDC Mobile or at GDC on the Nokia stand in the N-Gage area.

Speaking to us in an exclusive Q&A published online at **developmag.com**, Guilbert told us that the studio's first project as a studio is an action-adventure game for HD consoles codenamed *Adrift*. The game is being demonstrated to prospective publishers at GDC.

www.dont-nod.com

UK TIGA SURVEY REVEALS DEVELOPER FRUSTRATIONS

A new survey conducted by UK games development trade association TIGA has suggested that developers across the

country are still adamant a tax break for games production would help their business.

85 per cent of respondents backed tax breaks for production, and 77 per cent recommended more liberal R&D tax credits, 51 per cent called for lower corporation tax.

In terms of recruitment, 63 per cent of studios said they faced skill shortages in the last year. Finding programmers was the most challenging position to fill with 74 per cent finding it hard to fill programmer vacancies.

More topline details have been published at **developmag.com**, while the full report can be obtained for £95 direct from TIGA.

www.tiga.org

Top 10: Developers Chart: February 2009

1. Nintendo	Japan	Wii Fit
2. Treyarch	USA	CoD: World at War
3. Capcom	Japan	Street Fighter IV
4. EA Black Box	Canada	NFS: Undercover
5. EA Canada	Canada	FIFA 09
6. Level 5	Japan	Professor Layton
7. Ubisoft Montreal	Canada	S. White Snowboarding
8. Traveller's Tales	UK	LEGO Batman
9. Sega	Japan	Mario & Sonic
10. Monolith	USA	F.E.A.R. 2

Chart Supplied By:

ChartTrack
charttrack.co.uk



ELSPA
elspa.com



SAY WHAT?!?

"We did get fat in too many places. It seemed like anyone who could draw a guy with a gun with a crayon could get funded."

John Riccitiello EA's pre-recession bloat. Might go some way to explain how *Army of Two* was given the green light...

"I hear Sony FINALLY has the PSP 2. And thank goodness, they've removed the stupid battery-sucking UMD disc drive. I'm excited!"

David Perry Twitters about 'the new PSP'. If Sony were a person, it would have defriended him on Facebook seconds later.

"Critics were unkind to the first *Street Fighter* movie as well, but that film has been ridiculously profitable for Capcom over the last decade."

Capcom says it doesn't care if its new movie is badly reviewed. The literary equivalent of putting fingers in your ears.

"Increased brain activity in terms of blood flow isn't evidence the brain is being trained or altered at all."

Evidence 'proves' Brain Training and the like do no such thing. But we don't care – hours spent on *Gradius* has improved our hand/eye coordination. At least that's what we tell our mums.



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COMMENT: BUSINESS

Network gaming hits the mainstream

by Rick Gibson, Games Investor Consulting



Digital distribution paints an enticing picture for games studios. The promise of sidelining all those middlemen – retailers, manufacturers, distributors and even publishers – is a powerful lure for companies swimming against strong financial currents. No warehousing, no market development funds, no point of sale marketing, customers who are always online, the long tail: the lure has glistened attractively for years.

And 2008 proved to be a watershed year for mainstream games content being distributed over the network to console and PC. Western publishers have begun to wake up to the potential – EA expects to make over \$500m from this category in its 2010 financial year. While retail in fact has a long life span, last year network gaming suddenly came of age.

The 2008 global network games market was valued at \$13bn, growing faster than retail – that's saying something given that retail games boomed pretty much everywhere outside of Japan. The year was a predictably good one for most in the better-known categories of network gaming. You'll be sick of hearing about casual online games providers riding an upward trend, with growth healthy at 25 per cent year on year.

No surprise that MMOs and virtual worlds grew strongly at over 30 per cent, although smaller companies innovating at the edges really drove the market's expansion, not *World of Warcraft*. Even the red-headed step-child of the games family, mobile gaming, broke out of its doldrums, with iPhone and smartphone gaming probably counterbalancing the contraction in regular mobile gaming to result in net growth.

The real success story wasn't at the periphery of the industry, but at its heart, driven by the core gamer. The fastest growing area of network gaming was DLC on console and PC.

Surviving largely on hot air before 2005, it experienced a sudden growth spurt, reaching \$800m in 2008. What caused this sudden adolescent exuberance? The availability of quality download services on console and PC was the trigger, resulting in core gamers buying and accessing games content solely online in rapidly increasing numbers. On PC, Steam is the leading platform, and PC gamers

used Steam and others to download increasingly up-to-date full-scale games from EA, Take Two, Activision Blizzard, Sega, Sony and other leading publishers at or very near retail release. This has resulted in healthy growth – and margins – for publishers who are no longer wary of online distribution.

But the real powerhouse of growth has been DLC on consoles, which grossed around \$500m in 2008. Since late 2006 publishers have come alive to the opportunities of selling content direct to consumers via consoles. That charge has been led by Microsoft, whose platform is easily the most mature both in terms of technology and users. Most publishers are following early movers Activision and Bethesda into PDLC with significant releases. Sony has been no

“ Since 2006 publishers have come alive to the opportunities of selling content direct to consumers via home consoles. ”

slouch, either, and even the Wii's lack of a hard drive hasn't stopped its owners from purchasing games online.

Now, as some PC games (such as EA's new *Battlefield 1943*) look set to bypass retail entirely, publishers are becoming increasingly emboldened to push the boundaries further. But EA's use of the term 'direct to consumer' is a misnomer, because it suggests that there are no middlemen in the networked world.

HIDDEN COSTS

Online does have a cost equation for distribution, digital rights management, marketing and billing not dissimilar to that on the high street. Most of EA's 'direct to consumer' products actually utilise a range of intermediaries, like mobile operators, online distribution partners such as Steam, online marketing partners like Yahoo and AOL, billing partners like Paypal, or its (troubled) DRM partners. However, mobile aside, most



network distribution can be considerably more efficient and cheaper for publishers than retail, as well as bringing advantages like usage and buyer tracking, or even direct ownership of the customer for publishers opening their own online store fronts. Marketing is of course still a key variable but it is far more accountable online.

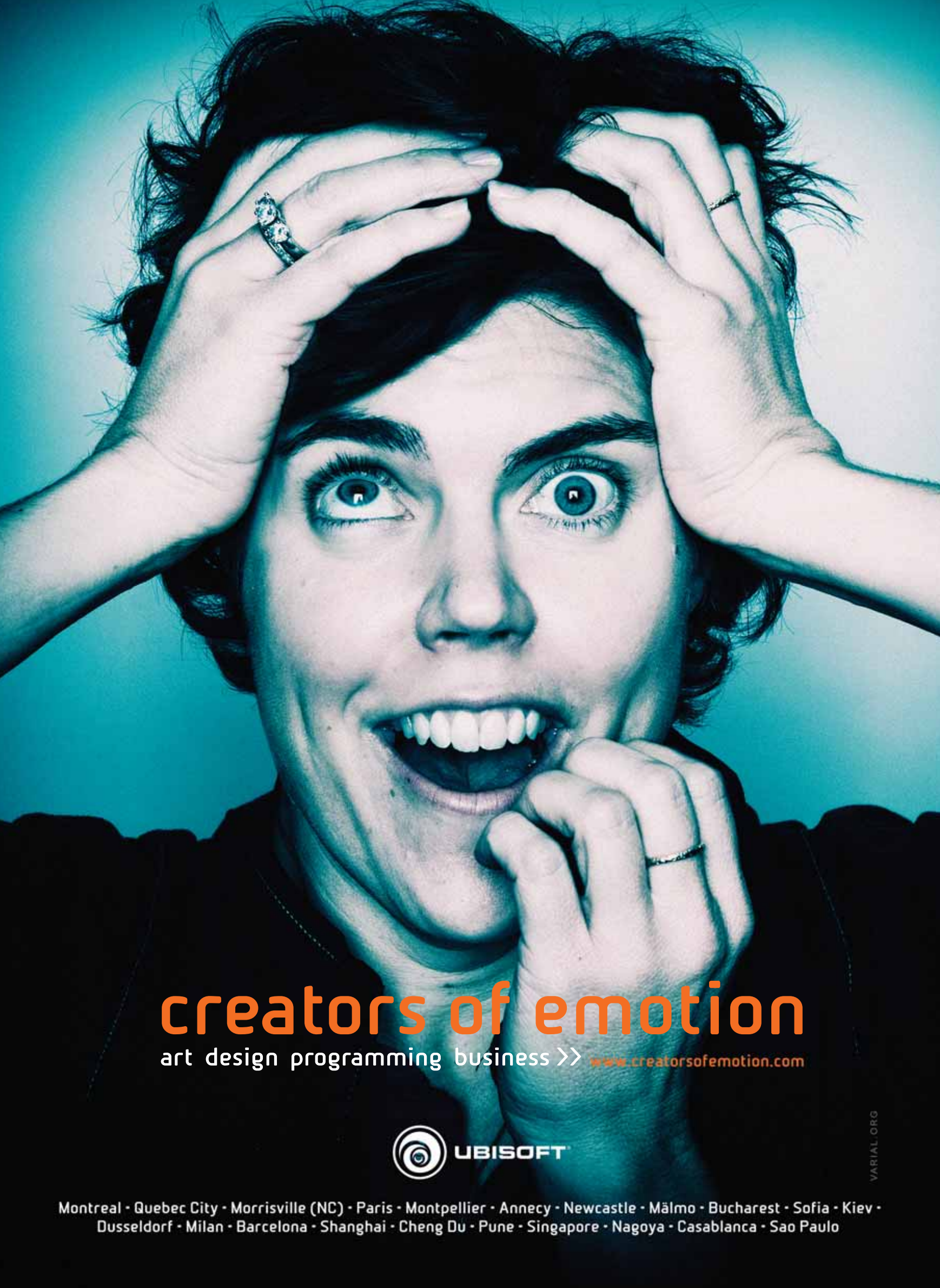
So when will network gaming overtake retail? The way is littered with red faces and broken crystal balls, and the impact of the coming industry down-cycle merging with a global recession and rampant globalisation of the industry will have highly unpredictable effects on the market.

What is sure is that retail costs for publishers are rising, recession is driving down RRP's of boxed product, and some retailers are even beginning to question the logic of dedicating shelf space to gaming. In contrast, network gaming is growing fast on PC and console in the West, and on PC in Asia (outside of Japan) and particularly in China, with its negligible retail market and multi-billion dollar online market growing at relatively high double figures per annum. These factors will accelerate the global market's shift towards network distribution, thus eating into retail's market share.

Today, networked games represent 30 per cent of the global games software market, and we believe that, based on current trends, retail will take a minority share of the global market by 2013 – although it will take several more years for the West to catch up.

Battlefield 1943 is EA's first attempt at a network-exclusive hardcore game

Rick Gibson is a director at Games Investor Consulting, providing research, strategy consulting and corporate finance services to the games, media and finance industries.
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COMMENT: INDUSTRY

Towards a more equitable, flexible workforce

by Owain Bennallack



Flexible game development is here. More studios are hiring staff on short-term contracts. A wide range of freelance creatives are performing clearly defined roles on projects, from pre-visualisation to plot development. The production of great chunks of art is routinely outsourced to companies in Eastern Europe and China.

These trends aren't going to go away. The reason, as ever, is cost – although the move can also be explained in terms of making better games.

Most projects start with small teams exploring an idea. The risk is very high so it makes sense for the team to be small. As the project develops, the risk reduces as the game takes shape and the focus moves from innovation to implementation, with staff levels massively ramped up in the middle, before dropping back as it's finished (whatever 'finished' means these days).

“There are studios which have gone bust because some people still haven't reconciled production cycle and staffing realities.”

It never made sense for lots of staff to sit around idly during this process. The result was either expense, because you had to pay them to do nothing, or it led to bad business decisions, because the need to pay them meant taking on unsuitable work to occupy them. Studios still go bust because they haven't reconciled production cycle and staffing realities.

Hence the attractiveness of flexible contracts and outsourcing. The trouble is, what's good for a studio can be rotten for staff. Many studios have found it hard to recruit on short-term or flexible contracts, and no wonder – the ecosystem is hardly set-up to inspire confidence in would-be freelance developers.

Even the smartest bosses don't always see this perspective: I've been looked at blankly

when I've asked what's in for the workers. You feel like Citizen Smith.

The trouble is shipping work overseas might be a short-term imperative, but it will be a pyrrhic long-term solution if it hollows out the UK talent pool. We instead need to enable UK creatives to target their skills at the higher 'value adding' parts of game-making, so they can play a pro-active role in the shift to flexibility, rather than it being a slow erosion of security.

Here are five things required to make this alternative to workforce operation a viable option:

1. More local clusters

Some aspects of making a game will always need bodies in a room. For that to be compatible with contractor-style staffing, people need to gravitate towards local clusters so they can move between companies without moving house.

2. Cooperation between studios

If studios could let each other know when they were scaling up and scaling down, they could better share the local talent. I'm not totally naive – any studio will put its own projects first. Nevertheless, a studio with too many staff and a big wage bill might be a 20 minute drive from one with a skills shortage. An alternative to coordination is more external companies who provide developers on fixed terms and know where their next jobs will be.

3. A more transparent talent pool

A flexible workforce is incompatible with today's expensive-to-hire and loathe-to-lose recruitment culture. Ideally all the country's talent would be on a big database, and project leads could cherry pick the most suitable. This is – with fewer screens and more lunches – how movies are made. Something like Dave Perry's Game Industry Map might plug this hole.

4. Even better production processes

It's hard to believe that a decade ago a professional approach to game development was considered an optional extra. But to bring more staff in and out on demand, projects will need to be further modularised. Any film editor can work with the output



from any film shoot. Can we get there with games?

5. Better pay for short-term staff

This is key. In truly flexible creative industries, from Hollywood to TV to comic book creation, talented staff are compensated for uncertainty with better pay, which gets them through the lean periods and pays for pensions. It is unrealistic to expect to pay the same pro rata wage to a contractor as a permanent staff member. For studios to enjoy the wider benefits of a flexible workforce, they must give up some portion of the gains.

With the recession now touching games development, more developers will find themselves forced to confront flexible working. It'd be nice if it sounded like less of euphemism, and more like a second coming for the British games industry.

Can the games industry ever be like The Movies?

Owain Bennallack is executive editor of *Develop*. He edited the magazine from its launch until its February 2006 issue. He has also worked at *MCV* and *Edge*, and has provided consultancy and evaluation services to several leading developers and publishers. He is also chairman of the Develop Conference advisory board.

COMMENT: DESIGN

Ground Control

by Billy Thomson, Ruffian Games



I know, it's a cheap pun for the title to my first column, but allow me to redeem myself. Because it ties in perfectly – work with me here – with one of my strongest views on game design: that control is everything. As far as I'm concerned, as a designer the control system is the launch pad for every gameplay feature you'll ever add to a game. Even the strongest, tightest design can fail to take off if you don't get the controls right.

I see it far too often in games where it's obvious that the team has spent a large amount of time and effort designing and implementing an impressive range of cool features, only to ruin them at the last minute by making a complete arse of the control setup. It's so infuriating because it's not that difficult to avoid.

In this column I'll try to list and explain all of the mechanics and methods that I generally employ to ensure that the game has a solid, intuitive control system that compliments the feature set.

Obviously, different genres of game have completely different features and game mechanics which lend themselves to different types of control methods, so for this article I'll focus purely on the type of control you would need in an action oriented game of the first and/or third person nature.

REACTION TIME

Whether the player presses a button to initiate an action or attempt to interrupt one to perform a new action, I believe they should get an instant reaction on screen. My preference is to instantly perform the action expected rather than delay; so when the player says jump the player character had better jump. I don't want to see a laborious animation leading into a jump, I just want to see them jump. The same thing goes for interrupting animations. It should be instant control over aesthetics every time.

FAMILIARITY

The best controls barely need to be taught to the player, they just instinctively know what to do. Usually this is due to the fact that the controls are in some way familiar to them, due to their previous experience with another game that had similar features with the same button mappings. It's not lazy

design to use an existing control method: if it's been done before and it works well, don't feel the need to re-design it. It may make you feel better as a designer, but the player won't thank you for it.

MAPPING

Good control systems allow players to perform multiple actions at the same time so as to perform more complicated and generally more effective actions; like jumping into the air, throwing an explosive barrel, taking aim, then shooting the barrel causing it to blow up as it lands at the target's feet. Fantastic! If you've got your controls mapped properly this series of events will be possible with relative ease, if you've got them wrong it will likely be a difficult and frustrating task that will very rarely be used. The key here is to ensure that linked actions can be performed at the same time with different fingers and thumbs. Tangled fingers at any time means you've failed.

Far too often I see games with an impressive range of features, only to be ruined by making a complete arse of the control setup.

CONSISTENCY

The best games make sure that there is always consistency to the controls, ensuring that any new equipment or abilities that are presented to the player later in the game use similar methods of control to the equipment and abilities that preceded them. This ties in closely with Familiarity, but this time it's the controls that they were taught earlier in your game rather than a previous game that make the difference. If you get this right you should be able to introduce new features to the game without the need for constant tutorials.

SKILLS

Finally, I'm a great believer in making controls easy to pick up and play for beginners so that



everyone can enjoy your game, but I also try to make sure that there is enough depth to the features and controls to allow players of higher skill to master the controls and become a far superior player. If you have any sort of online element to your game then this level of depth and mastery of the controls is vital to create a vibrant and competitive online community.

These may well seem like obvious areas to focus on, but in my experience too few games appear to have taken all of them into consideration. As far as I'm concerned, if you manage to nail all of these areas you're going to have the best control system possible for your game. Fail in more than a couple and it's likely your game will fail to take off in the way you had always intended it to.

Even the strongest, tightest design can fail to take off if you don't get the controls right

Billy Thomson is the creative director of newly-formed developer Ruffian Games. Billy has over 13 years experience of designing video games, including design roles on *Grand Theft Auto* and *GTA2*, before working as lead designer on Realtime Worlds' celebrated *Crackdown*.
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COMMENT: CODING

Deferred Shading

Revisited

by David Jeffries, Black Rock Studio



Our deferred shading system got its first real work-out for our Vertical Slice recently, so I thought it'd be interesting to look back and see if the technique justifies the hype.

To recap, a deferred shading system is one in which the lighting is deferred until the post processing phase. When the geometry is initially rendered into the frame buffer, simple shaders without lighting are used, while at the same time the GPU is writing information about the material of each pixel into a G-Buffer. Then, during the post-processing phase, the lights are rendered in screen space using the information from the G-Buffer.

For the programmers the deferred shader has opened up new post-processing avenues that hadn't been available to us before. Per-pixel motion blur was the stand out example and something that fits our game perfectly. Because we're already maintaining multiple render targets, the additional cost of motion blur is only writing the motion vectors into the G-Buffer and performing the final blur pass.

Having all the information in the G-Buffer available to us at the post-processing phase enables us to do more advanced post-processing than previously possible.

For example, one of the entries in the G-Buffer is the pixel normal (required for the lighting calculation), which means we can do higher quality varieties of screen space ambient occlusion or screen space directional occlusion.

As expected, our post-processing phase is now far more important (and expensive) than before. In the past our post-processing would consist of tone mapping, some colour filters and maybe a touch of depth of field, with everything else going through the vertex units. Now we add diffuse and

specular lighting, light-scattering, screen-space ambient occlusion, screen-space shadow maps and a colour cube to the phase.

By moving these effects into the post-processing phase we make the initial geometry rendering phase faster and get the desirable property that lighting and shadow receiving become independent of the complexity of the underlying model mesh.

Also, because the lighting is applied in screen space, the lighting shaders are only used on pixels which are visible. We expect

“If you decide to go deferred then it won't be long before your artists request the game be set at midnight for good mood lighting.”

that by the end of the project we will be spending 50 per cent of our render time in the post-processing phase.

We have 96-bits available in our G-Buffer spread over three 32-bit render targets and with this we're able to represent almost all the materials we need. Any materials that can't be represented in this way get handled separately by reserving 8-bits of the G-buffer for a material ID.

For the artists deferred shading is all about the extra lights. With our old system we had a light for the sun and a kicker and that was about it. Any other light effects had

to be baked into the geometry as an off-line process which meant the lighting didn't react well when the environment changed.

With the deferred shader the artists can place down literally hundreds of lights for illuminating the geometry in real time.

There are restrictions however; firstly, because the lights are rendered in screen space their expense is proportional to their size on screen. Lots of localised lights are fine but if you start putting in big lights that can get close to the camera then you'll quickly eat up your fill rate.

Secondly, remember that strong lights look strange unless they cast shadows and, while deferred shading can help with the cost of receiving shadows, your engine will still pay the cost of casting them in the first place.

It's clear that disentangling the lighting from the vertex processing is conceptually the right thing to do, and Microsoft and ATI have both predicted that we'll all be doing it in the future. But the nagging question has been whether the performance costs outweigh the gains on the current generation of hardware, and the answer to that question really depends on the type of game you're making.

If you do decide to go deferred then, speaking from experience, it won't be long before your artists start requesting the game be set at midnight so they can make the most of the mood lighting. So don't put the moonlight tech on hold just yet.

David Jeffries started in the industry at Psygnosis in Liverpool in 1995, eventually working on *Global Domination* and *WipEout 3*. He later moved to Rare where he worked on the *Perfect Dark* and *Donkey Kong* franchises. Next came a move down to Brighton to join Black Rock Studio (which was then known as Climax Racing) in 2003. On this generation of consoles he's been the technical director of *MotoGP'06* and *MotoGP'07* before starting work on new racer *Split/Second*.
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New content.

EVOLVE. It takes place on Tuesday 14 July as a one day event with three tracks and then as a new track within the main programme on the Wednesday. Evolve will focus on developing games for new platforms including mobile devices, iPhone and XBLA, new technologies such as Facebook and YouTube and new markets like social and casual gaming



THE DEN

New Develop Den.

More club than classroom, the Develop Den will run – with the help of One Life Left – alongside the main conference on 16 July offering off-the-wall sessions in a creative space.

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And what's not?

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Confirmed speakers include:



David Jones – creator of Lemmings and Grand Theft Auto, and founder of Realtime Worlds; one of the biggest independent developers in Europe – will share his experiences of building up from Crackdown to Realtime Worlds' upcoming online title, APB.



Chris White, Glu Mobile
Tahir Basheer, Sheridans
Stuart Dredge, Pocket Gamer
Martyn Brown, Team 17
Kristian Segerstrale, Playfish
Gareth Davis, Facebook
Jason Oberfest, MySpace



Simon Gardner, Climax Studios
Jason Avent, Disney Black Rock Studio
Alex Wiltshire, Edge magazine
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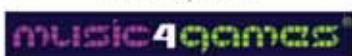


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California Dreaming

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Game Connection
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IGDA Education summit
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Independent Games Summit
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Localization Summit
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Serious Games Summit
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Worlds in Motion Summit
March 23rd to 24th

THE KEYNOTES

MAIN KEYNOTE #1

Discovering New Development Opportunities

Speaker: Satoru Iwata, president of Nintendo

Wednesday, March 25th, 9:00AM – 10:00AM



MAIN KEYNOTE #2

Solid Game Design: Making the 'Impossible' Possible

Speaker: Hideo Kojima

Thursday, March 26th, 10:30AM-12:00PM



GDC MOBILE KEYNOTE

Why the iPhone Just Changed Everything

Speaker: Neil Young (founder, ng:moco:)

Monday, March 23rd, 9:30AM – 10:20AM



STAFF PICKS

Overwhelmed by the schedule? Then look no further than our list of the must-see sessions

EVOLVING GAME DESIGN: TODAY AND TOMORROW, EASTERN AND WESTERN GAME DESIGN

Speakers: Mark MacDonald (executive director, 8-4), Goichi Suda a.k.a. SUDA51 (CEO/game designer, Grasshopper Manufacture) Fumito Ueda (senior game designer, International Production Dept, Sony Computer Entertainment, Japan Studio), Emil Pagliarulo (lead designer – *Fallout 3*, Bethesda Game Studio)

Date/time: Wednesday, March 25th, 2:30PM – 3:30PM

Location (room): Room 132, North Hall

Track: Game design

Format: 60-minute panel

Experience level: All

THE INSPIRATION BEHIND NINTENDO DSi DEVELOPMENT

Speaker: Masato Kuwahara (project leader, Nintendo DSi Hardware Group)

Date/time: Wednesday, March 25th, 12:00PM – 1:00PM

Location (room): Room 132, North Hall

Track: Game Design

Format: 60-minute lecture

Experience level: All

LIONHEAD EXPERIMENTS REVEALED

Speaker: Peter Molyneux (head of studio, Lionhead Studios)

Date/time: Friday, March 27th, 2:30PM – 3:30PM

Location (room): Room 135, North Hall

Track: Game Design

Format: 60-minute lecture

Experience Level: All

10 THINGS GREAT DESIGNERS EXHIBIT

Speaker: Gordon Walton (co-studio director, BioWare)

Date/time: Thursday, March 26th, 1:30PM – 2:30PM

Location (room): Room 2020, West Hall

Track: Production

Secondary Track: Game Design

Format: 60-minute lecture

Experience Level: All

AARF! ARF ARF ARF: TALKING TO THE PLAYER WITH BARKS

Speaker: Patrick Redding (Game/narrative designer, Ubisoft Montreal)

Date/time: Friday, March 27th, 11:10AM – 11:30AM

Location (room): Room 2002, West Hall

Track: Game Design

Format: 20-minute lecture

Experience Level: Intermediate

BEHIND THE SCENES: THE GEARS OF WAR 2 CINEMATICS PIPELINE

Speaker: Tanya Jessen (senior associate producer, Epic Games), Greg Mitchell (digital cinematographer, Epic Games)

Date/time: Thursday, March 26th, 9:00AM – 10:00AM

Location (room): Room 131, North Hall

Track: Visual Arts

Format: 60-minute lecture

Experience Level: Intermediate

BUILDING YOUR AIRPLANE WHILE FLYING: PRODUCTION AT BUNGIE

Speaker: Allen Murray (producer, Bungie)

Date/time: Wednesday, March 25th, 12:00PM – 1:00PM

Location (room): Room 3007, West Hall

Track: Production

Format: 60-minute lecture

Experience level: All

MEDIA MOLECULE: 'WINGING IT' - UPS, DOWNS, MISTAKES, SUCCESSES IN THE MAKING OF LITTLEBIGPLANET

Speaker: Alex Evans (technical director, Media Molecule), Mark Healey (creative director, Media Molecule)

Date/time: Wednesday, March 25th, 12:00PM – 1:00PM

Location (room): Room 135, North Hall

Track: Game Design

Format: 60-minute lecture

Experience level: All

STAR OCEAN 4: FLEXIBLE SHADER MANAGEMENT AND POST-PROCESSING

Speaker: Yoshiharu Gotanda (CEO and CTO, tri-Ace)

Date/time: Friday, March 27th, 4:00PM – 5:00PM

Location (room): Room 132, North Hall

Track: Programming

Format: 60-minute Lecture

Experience level: All

EXPERIENCES AND RARE INSIGHTS INTO THE VIDEO GAME MUSIC INDUSTRY

Speaker: Hitoshi Sakimoto (Basiscape International)

Date/time: Thursday, March 26th, 9:00AM – 10:00AM

Location (room): Room 132, North Hall

Track: Audio

Format: 60-minute Lecture

Experience level: All

GDC09 SUMMITS RUNDOWN

AI Summit – The two day event promises to provide an inside look at key architectures and issues within successful commercial games. Targeted at intermediate and advanced programmers, the summit offers a deeper insight into the world of game AI

Casual Games Summit – Catering for the continually expanding casual market, this summit will tackle issues including publishers' funding criteria, optimising portals, monetisation, common design pitfalls, connecting people through casual games, and emerging platforms and business models.

GDC Mobile – Made for the creators, publishers and distributors of mobile games, this year GDC Mobile will give special attention to new platforms like iPhone and Google Android.

Game Outsourcing Summit – Covering an integral part of the game development process, the summit promises to provide solid, useful advice from industry professionals looking to learn more about outsourcing

IGDA Education summit – Offering a unique opportunity for professional game educators, the IGDA event creates an opportunity to see experimental and inventive educational approaches first hand.

Independent Games Summit – With services like WiiWare and PSN continuing to expand the opportunities for smaller developers, there's never been a better time to visit the Independent Games Summit, which features discussions ranging from game design philosophy to marketing.

Localisation Summit – As the games industry continues to spread its wings and markets expand across the globe, the Localisation Summit offers an opportunity to learn more about taking internationalisation beyond traditional translation.

Serious Games Summit – Providing a forum for those wishing to harness the potential of the serious gaming industry, the summit explores developing for education, government, health, military, science, corporate training, first responders, and social change.

Worlds in Motion Summit – For those looking to create interactive online spaces for either entertainment or commercial reasons, Worlds in Motion will cover key issues including player created activity and building socialisation directly into games.

TUTORIALS

One day tutorials

Monday, March 23rd

- Advanced Visual Effects with Direct3D
- Learn Better Game Writing in a Day
- Creativity Boot Camp '09
- XNA Game Studio Developer Day

Tuesday, March 24th

- Insomniac Games' Secrets of Console and Playstation 3 Programming
- Intense Screenwriting Techniques and Mind-Boggling Conversation Systems
- Fundamentals of Game Design Workshop
- The Big Picture 2009: Managing Your Game Dev Deal and Operating Your Game Dev Studio
- Intel Game Threading Tutorial
- Khronos Tutorial
- Microsoft Game Developer Day

Two day tutorials

Monday to Tuesday, March 23rd to 24th

- Math for Programmers/Physics for Programmers
- Game Design Workshop
- Audio Boot Camp



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BETA

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"Agile development has little to do with writing code. It's understanding what publishers want..."

Dan Marchant, Strawdog Studios, p43

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viable option
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Holy Moly

The head of Lionhead gives a frank account of how and why his studio has changed into a more responsible and controlled operation, p30

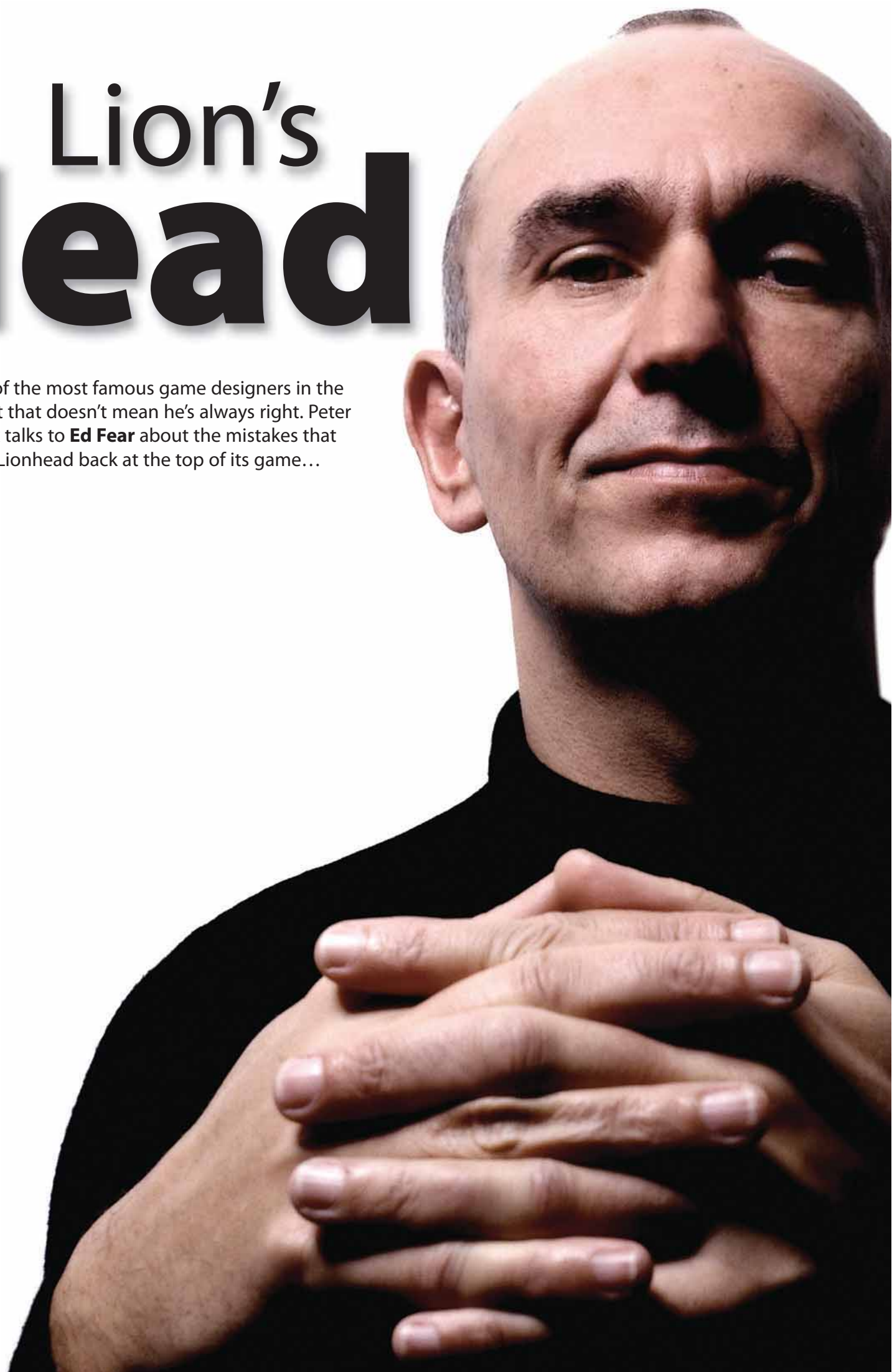
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Lion's Head

He's one of the most famous game designers in the world, but that doesn't mean he's always right. Peter Molyneux talks to **Ed Fear** about the mistakes that have put Lionhead back at the top of its game...



Peter Molyneux has done a lot of interviews during his career. Before the PR blackout, it wouldn't be rare to find an interview with him in a different magazine each month. But times are different now; he is much more measured – some might say controlled – and certainly humble.

Which makes it all the rarer for *Develop* to be invited down to Guildford when there's no new game to talk about. With developers shedding staff by the day, is there bad news?

Neither sullen nor rared up at the prospect of demoing a product and giving his PR spiel, he's easily the most relaxed we've ever seen him. It's clear that he's relishing the opportunity not to talk about his latest product, but the company – and the people – that he holds closest.

Of course, it hasn't always been quite so rosy. Rewind to the second half of 2005 and a series of mistakes lead to a difficult period for the company both critically and commercially; his style of talking about his games was severely criticised and the company's whole process of making games had to be completely re-evaluated. Keen to find out more, we quizzed Molyneux himself to find out exactly how the company turned itself around.

Let's start with the 'Justice' concept artwork that leaked on the internet last month – how does that tie in with your GDC talk about experiments?

This talk I'm giving is all about how we access creativity through doing experiments. These aren't just wild crazy ideas I have in the bath; they're the result of real due diligence experiments that we've done, and we've gone through a lot of those.

You know, I think... you don't always work on the first thing you think of, and it'd be inappropriate to do so. The better thing to do

is to lay these things down and say things like 'how would this look', 'how would this feel', 'what would I experience if I was playing this', so that before you end up spending huge vast amounts of money – which is the way we used to do it – you try and get at least get half-way to knowing if you're making a good experience. We do some art concepts, we do gameplay concepts, and we sort of mix those together to see if something's going to work.

I think I'm famously awful at developing games. I'd walk into the office with an idea and that'd lead us to spending a lot of money very foolishly.

It's funny that it got out there – I understand how it did, but it's a shame, because there are confidentiality issues.

Is it something you've always practiced, or is it a new initiative?

The truth is, I think I'm famously awful at developing games. Before, I'd walk into the office, wave my arms and say 'I've just had a cool thought' – usually after severe alcohol abuse – and that lead us to spending a lot of money very foolishly on things that weren't going to get anywhere.

Quite a while ago now, we sat down and thought, well, this is ridiculous – we can't keep this notion that game development is a purely creative process, and that you have to build it to be able to see it. There's got to be another way.

The first thing that we did is say, right, we need to do more work upfront it design and concepting, and that means less iteration further on. Because when you've got a team like *Fable*, which was around 100 people, you can't experiment with that many; you'd be spending mad amounts of money. You just can't do it. So now, a lot of our design decisions are made when the team is small so that we can change our minds, because the thing about design is that you need to change your mind. You can't come up with one idea and then just expect that idea to be perfect – it's never going to work.

I'm a great believer of getting the 'wrapper' right up front – how you describe the game to people, how people describe the game to each other, and getting the mechanics and look and feel of it right – and that's a lot to do with experimentation. We do that a lot. In fact, we do it so much that people get a bit panicky and ask when we're actually going to go into production because we'll keep on going around in that loop until we're happy with it.

Was this process applied to *Fable 2*?

Yeah: the big things – the breadcrumb trails, the dog, the one-button combat – are all the result of real iteration, experimentation and concepting that we did. If it wasn't for that, it just wouldn't exist. So, we had a one-button combat demo three months after we started thinking about the game.

I'm not saying it's the perfect way to work, but you know, one of the things that Lionhead really wants to do is innovate, and challenge the fundamental foundation stones that we think of as a given in the industry – things like death mechanics and pause screens and minimaps – and if we're going to do that, we can't do it in a purely creative way.

If you asked me what I was most proud of in *Fable 2*, it's not actually any of those: I'm most proud of the process. If I'm honest, on *Fable* we just burnt people's lives; we destroyed the team. Week after week, month after month, they worked 50, 60, 70, 80 hour weeks. It destroyed their lives and destroyed their marriages. You just can't do that anymore. You can't do it.

How much of that is down to pressure that you put on the team?

What I used to say is, 'look, I'm working 120 hours a week – I'm only asking you to do half of what I do!' But you can't do that anymore, because you're asking people to make a choice not between whether they go to the pub tonight or not but whether they go home and see their children. And so because of me, and the way I used to sort of lead from the front and work harder than anybody else, it used to semi-destroy people's lives.

So I've tried to structure Lionhead so that creativity is really important, but it isn't obsessively important any more. That the



Right: In-game artwork from *Fable 2* adorns many of Lionhead's staircases



Above: the Lionhead team in all their finery

voice of production and the reason of finance can be heard at an equal level as an idiot like me shouting from the rooftops, which is very much what I used to do.

So looking back at *Fable 2*, yeah, we crunched at the end, but it was only at the very, very end that we used up people's whole weekends. There's a few exceptions, but a lot of Sundays this studio was empty, which I thought was great.

How much of the change was down to financial issues?

Everything's important when you're making something big like this – the team, the morale, the quality of their life, how much money you're spending, the game features you're working on – all of that comes together to make a successful product. It's this holistic thing. I used to think that, if it's not good enough and you're working 60 hours a week, you should be working 70 to make it good. But that's just such a wrong way of working, because you're going to end up making huge mistakes.

At around about the same time, there seemed to be a consolidation inside Lionhead as you went to focus solely on one product. Why did that come about?

Well, we had this absolute nightmare of a time around the latter half of 2005 because of mistakes that we had made – and when I say 'we' I mean 'me' more than anyone else – which meant we had to slip *Black and White 2*. We'd made a mistake with the game, and

essentially we were building a game that was far too big. We also had to slip *The Movies* because of other design problems that were there, and *Fable: The Lost Chapters* for PC and Xbox were scheduled to be coming out too. It meant that within three weeks we had four SKUs to get out of the door.

Now, in order to achieve that – which we had to do because of lots of financial and legal reasons – we had to swell Lionhead to about 240 people, and that meant that we

“ If I'm honest, on *Fable 1* we just burnt people's lives; we destroyed the team. Month after month they worked 50 to 80 hour weeks. ”

were in about seven different offices around this research park. The amazing thing is that we actually managed to get those three games out on time, but if I'm critical I would say that the quality did suffer, and we never want that. When we got through it, we sat down and asked ourselves if it was important to make three or more games, or to make one or two games to the best that we could. The answer was pretty easy.

I really, really hate letting anyone go at any time, but we did for logical reasons have to

say 'this is not why we established Lionhead; this is not what we stand for.' And so we had to shed some people. That was this awful, terrible time, and going through meeting after meeting having to talk to people about why they weren't staying was really, really tough. I wouldn't want anyone to go through that. But when you come out of that, you realise that, yeah, the reason we did this was because we want to make great products in the future. But it was tough. It's good now, in that it sort of modifies the way I think about things on a day-to-day basis, because I never ever want to go back there again.

In recent years it seems that more developers are being honest about failure, and reassessing the way that they do things. Do you think there's any particular cause for this?

We're growing up. When I first started in this industry we were like six year-olds. We used to go out and do ridiculous things, we never used to plan anything, we had no idea of anything financial. I can remember that back in the early nineties the word 'producer' was spat upon. We used to laugh at developers that had a producer – you know, 'What would you want one of those idiots for?' – and we thought that anyone with a producer ended up making games that were rubbish anyway. Now we're becoming adults, we've come to realise that mistakes are a good thing; they're good to go through, and you learn from them. Just because you're doing something doesn't make it right.



public about ongoing projects...

After *Fable*, there was pretty dark time where people looked at the game and compared it with what I said in the press, and they felt cheated. I realised that we just couldn't keep on doing that. But that was very much a reflection of how we worked, because what I was talking about in the press was what we were experimenting with at that moment, and a lot of those experiments would sort of come out as you were making the game. So I'd be talking about trees growing, and then we'd cut trees growing, and people would, of course, feel cheated.

So I made a rule: I will not talk about any concrete mechanics unless I can actually show you them in game. I'll talk about our ambitions to make the best role-playing

“ There's a time to make mistakes, and there's a time not to. If you're doing so with a team of 100, you're throwing millions of pounds away. ”

game of all time, but if you see *Fable 2* press you'll see that I talked about stuff as I demoed it.

People understandably get enormously upset about it – it's like seeing a trailer for a film and seeing Batman die, but then he doesn't die in the film; it would just be wrong. So I think a lot of what we do is realise what we've done wrong and work to try and make that right. It's far better than thinking that we get things right all the time.

How have you found it? I think people realised that it wasn't out of malice that you said these things, but just pure enthusiasm.

It's very, very difficult. There are lots of things I would like to show you know. Within ten feet of you right now is possibly the most exciting thing I've ever seen. I would love, with every atom of my body, to show you that. I'm like a kid that wants to show his toys off at Christmas, but it's just the wrong thing to do. You just have to restrain yourself, and there's a lot of willpower that goes into that. And that's caused a second rule: I must never, ever talk to the press when there is any alcohol around me, because then all my defences go down and I just blabber on and on about what we're doing and end up in terrible trouble.

I like talking to people about the games we're developing because I think that developing games is an amazingly incredibly exciting thing, and obviously it's good for publicity. But the real reason is that I've been showing off since I was two years old. This is all part of that process, and being the spokesman for the amazingly smart clever people here who make me look smart is just an incredible experience, it really is. You sit in front of a room full of journalists, especially at shows where half of them are practically dead due to lack of sleep or alcohol abuse,

and just seeing a little spark of wonder in their eyes is just amazing. Sometimes it's so amazing that I just get incredibly emotional about it. It's an incredible feeling.

Now that it's been out a few months, how do you think *Fable 2* has performed?

Well, I'm a greedy kid. I always want more. I think you can look at the number of copies that we've sold and the feedback and awards we've got, and you can say, 'Wow, that's an amazing achievement'. I'm incredibly proud of what we did – a lot of it seemed impossible when we were doing it. So there's an incredible feeling of pride.

I do think that, however, that there are more people out there that would enjoy *Fable 2*. Thinking about that is a real frustration. You can read that as, in my mind, *Fable 2* should sell more, because I think it's a great experience and a great game. Sure, I think there are things desperately wrong with it. Do I want to go in there and fix all of those things? Yeah, of course I do, but I really think it's one of the best games that Lionhead's done. It certainly had more innovation in it, even though it was a sequel, than a lot of other experiences.

Are you worried about becoming just the *Fable* company?

Lionhead stands for much more than just what *Fable* is, and we're working on things beyond that. We're working on *Fable* things – we've just done the DLC and we are working on other stuff. But we're also working on other innovative titles – and I'm not going to say title or titles, whether it's a prototype or experiment, whether it's near or far away – but I can say that what we're always trying to do is create something that is meaningful. When we think why we want to do this, it's because we want to make a landmark title.

It's a very interesting time in the industry to be trying that, because the industry is turning around and asking itself everything from the experiences we make for our current audiences, what they are, the balance and mechanics of what they are, even to who our audience is. Lionhead tries to stand for innovation and to give people things that they perhaps might not have expected or imagined. That's very important to us.

So you're working on multiple games at the same time again?

I really don't think anymore of them as games anymore – I think much more of franchises. *Fable* and *Fable 2* are just events in the whole lifecycle of the franchise. If you start thinking more like that, and less like 'we're going to make *Fable 1*, then see what happens, then do *Fable 2*, then see what happens' – in other

My feeling is that if you're making mistakes when you've got 100 people, that's a really big mistake. So you'd better make sure that you're making the mistakes when you're a ten or 20 person team; where it's absolutely fine to turn around and say 'You know that last month's work – it wasn't right, let's start again'. If you're doing that with 100 people, you are throwing millions of pounds down the toilet. I just don't think that's acceptable any more.

There's some very logical production-orientated things that really enable the creativity and the quality of the final product you're making. But yeah, mistakes are essential, and it's essential to realise that you're going to make mistakes – and I call it iteration – but there's a time to make them, and there's a time not to. We're being honest; we're being more grown up.

It's a scary thing for this industry to realise that we're not the new kids on the block anymore. We had so many excuses when we were only ten years old – purely as an industry, we were very, very arrogant. We said things like, 'no-one else knows how to make creative stuff'. Now a lot of the people I know, both inside Lionhead and at other companies, are realising that this creative process that we do isn't that different to other creative media, and rather than reinventing the wheel every time we should look elsewhere to how other people do things.

You also changed your PR style at around about the same time, becoming a lot less



words, if I'm trying to make something that's going to be big, that's going to sell this much, that's going to make this much money – then you need to think about much more than just the game. Think of making a whole body of things – from books to films to action figures to websites and box art.

You're also recruiting at what's a pretty tough time for development. What's brought that about?

It's a very challenging time for the industry, we're not used to this stuff. For a long time we've been reading things about teams doubling in size, and I think we're reaching the ceiling of that now. It's like when Hollywood did movies like *Cleopatra*, which in today's terms would cost \$300 million dollars. Suddenly Hollywood said, 'Hang on a second, we can't do every film for this amount, we just won't make enough money'. We're getting near that thought now as well; we just can't keep on making these massive huge bets, and nor should we be.

Part of the excuse is that it's the new generation, but that's here now, and so now's the time to bring the costs down. Lionhead's in the lovely position that we can grow just a little bit. Only because of what we're doing – it's so insanely hard and difficult that we need wonderful people to do it.

You're obviously happy with the support you're getting from Microsoft – how do you feel about the relationship now that the dust has settled?

Of course I'm going to say it's great, but I'm going to speak with complete honesty: I think they're a fantastic company to work for. It's very, very frustrating working for a company that's 5,000 miles away; I don't

pretend that there aren't frustrations there. But they have a will and a passion to do things that we want to do, and I think our shared belief of the future and the games that we're making has been fantastic for me.

I'd say, even more than that, I've learnt an enormous amount from them, and I never expected that. And that's from Microsoft as much as it is from MGS – I've learnt that being part of a corporation can be hugely creatively enabling, and I just need to learn and develop a few new skills, some of which involve the fact that working inside a massive machine doesn't mean you can't be the fastest spinning cog. It just means that you need to learn where to work. It's been a very, very interesting time.

I love the job I do. I love it so much. Lionhead is just a wonderful place to work. You've got to realise that nothing, nothing, compares to the enormous struggle of dealing with venture capitalists. That was tough. There was a band of people that had invested in Lionhead because they very

clearly wanted to make some money, and there was me bursting into the board room and saying, 'I've got a great idea!' and they're saying, 'Oh God, Peter, will you just shut up with your great ideas and get on with making money'. And they were completely right. But that was a real, real learning process, and coming from that – and VCs are in one way easy to work with, because they're very clear on their motivation is – but when you've got a child like me coming into that mix... I had to learn a lot in there.

So going from that world to the Microsoft world is like getting out of jail, being able to breathe again. I'm in a fantastic place, I'm enjoying it, I love the challenges and the pressure. I love the idea that Microsoft has this vision and we're getting towards that vision. And it's a great time to be who I am, my position in the industry – sometimes I'm this passionately creative person, sometimes I'm this sales person and sometimes I'm this financially-led studio manager. It's fantastic to be able to be all three.



From the trenches

IT'S ALL WELL AND good hearing from Peter that the company has changed – but what have the ground troops noticed? Louise Copley is head of the *Fable* franchise, overseeing all of the studio's activities within that world. Tellingly, she's from a production background.

"The interesting thing is that, prior to coming to Lionhead, I'd only been at one game company," she says. "I came in with management experience, but I didn't really know who Peter Molyneux was."

"When I came here, he was just this incredibly creative, firey personality that needed a bit of taming, and that's where I came in. He and I get on really well together and work together brilliantly, but we are the ying and yang – he'll be blue-skying something and I'll be saying, 'Okay, we've got this many people and this much time, so you can actually only have this.' We actually have a great working relationship, it's really respectful, but there's definitely a lot of fireworks at times."

Copley has been at the studio for six years, and has witnessed the change first-hand. "The place has radically changed since I joined," she says. "It had this reputation for taking forever, but they've brought in people like me and we've made a huge difference in taming that creativity into getting things out of the door. You have to get a product out in the end, we're a business – but we still need all those burning creative ideas."

"*Fable 1* took a very long time, *Fable 2* has taken less time, and we've had successes and failures within that. But we look at those and change accordingly. One of the reasons that I've stayed at Lionhead this long is that it's a company that's not afraid to learn – certainly when I was outside of the industry companies would often stay in their old ways. But that doesn't happen here: as soon as we finish something it's postmortems, getting ideas of what we could do better, and we're improving. It's a very progressive company."



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WRIGHT vs BUSHNELL



Nolan Bushnell (right) is this year's BAFTA Fellow, the second luminary to be given the honour. Will Wright (left) was granted the first Fellowship in 2007.

One 'invented' video games. The other turned them into a mass medium. But what happens when we get Will Wright to interview Nolan Bushnell for us? **Michael French** listens in...

Nolan Bushnell is an industry legend, arguably founding the entire games industry. But when the opportunity arose to speak with new BAFTA Fellow, we didn't just want to settle on a dull Q&A.

Instead, we thought it would be good to get another industry legend Will Wright, creator of *The Sims* and the first BAFTA Fellow, to interview his friend Nolan instead.

Here, the two talk about the early days of the games industry, inspirations, the effect games have on children, and even robots...

Will Wright: Nolan, to start with I read that, as a kid, you built a liquid-powered rocket roller skate – and I can only imagine what other trouble you got into. So my first question is: were you a pain in the ass as a kid? Were your parents concerned about you? Or were they encouraging you?

Nolan Bushnell: It was half and half. My dad was constantly encouraging me and my mother thought that I was crazy. But later on, after my dad died, my mom became very supportive. So I think they might have been 'good cop, bad cop'-ing me the whole time.

WW: That was their masterplan. OK, second question: You and I both grew up in the age of the pinball machine and there is a lot of nostalgia about that, and I have a lot of friends who are really into collecting classic pinball machines and stuff like that. But I realise that, probably more than any one else on the planet, you are responsible

for the death of pinball as an industry by pushing forward with video games. So... do you feel guilty about that?

NB: Absolutely! I loved pinball growing up – the fact that the art form, if you can call pinball play or designing that, no longer has resonance is... yeah, I am sad about that.

WW: Do you miss it?

NB: Yes I do. And I must confess I've always had a couple of pinball machines in my home and really have enjoyed some of the old classics, like *Fireball*.

WW: What was your favourite machine?

NB: There was one called *Tempest* that was an old Williams game which probably had the fastest playfield around. In fact it was so fast that they had trouble keeping the machines going as they just beat themselves to death.

WW: I remember as a kid in the early '70s, at some point I was in New Orleans airport and I came across this thing called *Computer Space*, your first arcade game. It looked like an alien object which someone had dropped into the middle of the airport. A sleek fibreglass machine and all-electronic display. It was pretty much the first electronic game I had ever encountered in my entire life. And it predated *Pong*, which I know was your more critical success. My question is: when you were making these things, did you have any inkling that this was a historic shift in mass entertainment? Or from your point of view

were these weird experiment sorta 'let's try these out and see how they do'? Did you realise how significant these things were?

“ I always looked at myself as the guy who was making games cost effective. I was dropping the price so anyone could make them. ”

NB: The simple answer is that I didn't realise the magnitude. I thought that this was going to be an important event and I felt it was going to be pretty big because it was really... I had so much fun and everyone I knew had so much fun playing computers on big mainframes – y'know, in the middle of the night when you could get computer time – that I just knew it had a resonant component to it.

So I always looked at myself as the guy who was going to make it cost-effective. It's funny, I really felt that instead of a million dollar mainframe I was dropping the cost so anyone could do it. It was obvious to me that if the cost was right everybody would do it.

WW: And that's a pretty significant drop in price – going from the mainframes down...

NB: Well, I actually started out thinking it was

Andy was the first mass-merchandised low cost computer-programmable robot, launched by Bushnell in 1985. He calls it his biggest failure, but is adamant that robotic toys and games have a long future ahead



going to be a microcomputer connected to multiple terminals. And that was the design direction I had started going down. It wasn't until later that I realised that I could make a standalone unit. The early computer games – *Computer Space* and *Pong* – they weren't built with an architecture at all. They were just really great signal generators, just because you couldn't... well, first of all the microprocessor hadn't been invented yet! And the chips just didn't want to go fast enough to refresh at video rates and so we had to do all kinds of tricks to get the thing to work.

WW: In many respects it's amazing they appeared when they did – it seems like they came out ten years earlier than they should have.

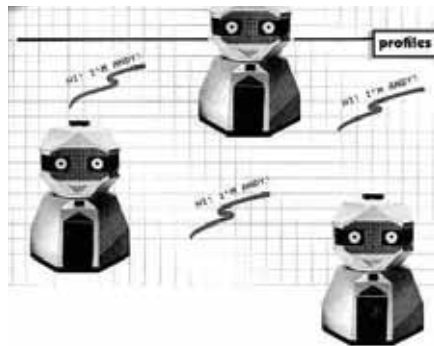
NB: Yeah, the first microprocessor game was *Asteroids* and that was in '77. And so I felt that my contribution was really to make the video game happen maybe six or seven years earlier.

WW: So you founded Atari, and later on another company Sente – both names are phrases from the board game Go, which you famously love. When did you first play Go? How long did it take you to realise how cool it was – in a game design sense?

NB: I was killing time in the stacks at the university and I came across this book called *Go*. And I started reading about the game and it became very fascinating to me. Of course, there was no internet play and I was at university at the time. It was just before Christmas and I was talking to my wife and said: 'This sounds like a really interesting game, I'd like to get it'. She actually found one somewhere in Salt Lake City, believe it or not, and I started playing it with my friends. And not having a clue about what the game was, but falling in love with it.

WW: Were you teaching your friends how to play it?

NB: Yes. And then when I moved to California I found out there was a Go club in San



Francisco, and that was the first time I actually played with people who knew what they were doing and really fell in love it. I fell in love with it as a game the minute I started really playing it.

WW: Yeah, I think it is the ultimate game in terms of simplicity of design versus strategy.

NB: Exactly. Minimum rules, maximum complexity.

WW: So, the Atari 2600 is considered the pre-eminent home game machine, and I don't even know how many titles were originally published on it – but of all the games on the 2600 did any stand out to you as your favourite? Or did any stand out as what this machine was built for?

NB: You know, even though Atari didn't build it, I thought the game of *Pitfall* was a very, very good adaptation. The other one I remember was that we had a chess game on it that had very good AI in it for the time, and when I consider how really clunky the computer was, and we had 128 bytes of

“ We made so many compromises on the 2600 to get the cost down that I thought it would only last a maximum of three years. ”

memory on the thing – not Kbytes, but bytes: 128 – it seems like that wasn't enough to display the pieces.

WW: Wow. That is a challenge.

NB: Yeah. And we had already made so many compromises on the 2600 to get the cost down that I felt that the machine would only last a maximum of three years and that we'd soon have to upgrade it a bit. Because the memory and user memory was so key to it all but the cost was falling by half every year – so the decisions you made for one year were completely wrong for the following year.

WW: There's a funny analogy with the first planetary probes that NASA sent out, which had minimal hardware – and the times they had to reprogram they had to try all these tricks to keep the things running. It's what you can do in terms of software on limited hardware is what is amazing.

NB: Yeah, and when we were designing the 2600 we were thinking they could make... well, it would be good enough for just 20 games. And what you say is completely true about hardware – it was the brilliance of the software. I think there were ultimately thousands of the cartridges developed for the 2600 over its life.

WW: In addition to game systems, you have also been involved in a lot of very interesting robotic toys. Of those, which do you think was your favourite?

NB: Robodog. It never made it to market but it was a robotic tin-looking dog. It was actually plastic, but it looked like it was made out of tin. And it would play a series of games with you that were really fun and it had a speech synthesiser chip and a pretty good little processor. We put in a game that was actually a lot of fun, called 'Hunt the Wumpuss'. The dog would spin around and say 'I smell a wumpuss', and 'The wumpuss is eight feet in front of you'. The objective of the game was then to go and jump on the wumpuss eight feet in front of the dog – it was totally imaginary, but if you didn't do it the dog would turn and say 'The wumpuss ran away and is now two feet behind me'. It was so much damn fun – you'd play it for fifteen minutes and would be exhausted, but a good person could step on about 20 wumpusses in a game session.

WW: That's brilliant. It sounds like one of those games that's fun because it's fun to watch people play it.

NB: Absolutely. Get a bunch of kids, and it's great fun to watch. Get some adults and – especially after a couple of glasses of wine – it's just hilarious.

WW: Rather dangerous I imagine! So as well as toys and games, you also started restaurant chains Chuck-E-Cheese and more recently your new venture Uwink. A lot of people, they tend to take their success and use that to fund world domination or other productive enterprises. For you it seems like it's restaurants. What's the deal? Why are you fascinated with restaurants?

NB: It's actually my fascination with people at play. It turns out restaurants are a good environment for having public play. I used to say at Chuck-E-Cheese that the pizza was the life support system for the game arcade. Uwink is really about creating a party or a festival or a banquet. Throughout history, when they play – whether it is sports or a get together for a festival celebrating either Easter the Harvest or whatever – there is a food element. So I thought it would be important to have some places where you can choose to go, and there is a party going on all the time. That is what Uwink is all about. And that's what Chuck-E-Cheese was all about.

WW: I visited Uwink down near the Kodak Theatre recently – I really enjoyed it.

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Bushnell is most famous for founding Atari. And, according to Will Wright, thus killing the pinball market



NB: Well it, like so many other things, it has so many extra things we can do, and we'll kind of grow into our own skin a little bit. But I'm happy with the early results.

WW: In your career so far, in all the things you've launched, what are the things you are most proud of personally?

NB: My kids. I'm really proud of them, now that they are coming adults; the mature people they are turning out to be. I must admit that's mostly my wife's responsibility, but I am very proud.

WW: You have quite a few kids, right?

NB: Yeah, I have eight. From a technical standpoint I am proud that I made the video game happen faster, and Chuck-E-Cheese... I dunno, I always tell people I am most excited or proud of what I'm currently working on. And right now I'm working on a whole bunch of things.

WW: On a related note, there is an old saying in autoracing that if you don't crash every tenth race then you aren't going fast enough. And I think the same is true of technology and entrepreneurship – unless you have a number of failures or risks you aren't pushing the envelope. You've had numerous successes, and like anyone a few failures. So which of the failures were the most noble? Where did you take a risk that was a good proposition but didn't really work out?

NB: I'm not sure I would class it as a noble experiment, but I think my 'Andy bot' programmable robot – it was frustrating more than anything. I was 100 per cent convinced the market was ready for it, but I misjudged the technological difficulty. It was the only company I have ever had in which the technology just wouldn't yield to me.

WW: You couldn't get it to work?

NB: Yeah, and the money... in the mid-'80s the technology of robots just didn't want to work. We didn't have the necessary multitasking software, didn't have a lot of sensors at the price we wanted it to be. It was too big a prospect. It was probably my biggest failure and the most painful – and yet at the same time I think that... well, I just can't envision a future in which we don't have little guys running around doing stuff for us.

WW: But 25 years later, it's still hard to do. It's amazing you were attempting it back then with the simpler technology we had then.

NB: Yeah... no, it was foolish!

WW: In terms of the future what are your thoughts? I ask because especially nowadays we face more and uncertainty, and at the moment there are people who are falling clearly into one camp or the other – even over the short term, the next 20 years or so, people speculate about issues financially, environmentally or socially. Would you say you are an optimist or a pessimist about the future?

I'm backing robotics. I just can't envision a future in which we don't have little robotic guys running around and doing stuff for us.

NB: Definitely an optimist. I think we will constantly solve problems in an interesting way. I tend to be very sceptical about government's ability to help us – but I think man will try and figure out its ways in spite of government.

WW: So you are very much a libertarian. Well, that's the end of my prepared questions.

NB: Hmm. I don't know what else we should talk about.

WW: It's weird, I've done so many interviews, but never had the chance to be the one asking the questions.

NB: Well, much in the way you've been asking me about my career – I've been a great fan of yours. I've been an aficionado of *The Sims* since... well, forever. I always rate you as one of the best game guys.

WW: Well, I don't think any of us would have had a chance without your work.

NB: I think that we all, in working on the video game as an entity – all developers really enjoy the fact that they haven't had to get a real job!

WW: Yes, that's very true. I've only just recently convinced my mother that I'm doing something worthwhile. It took her a while to get it. It's a generational thing. I guess you see that in your kids – because you and I grew up with these things as we were young adults, but you see kids grow up with these things, they have a resonance with games. But I work with these things every day, but don't have the resonance that I see my daughter or young kids have with games.

NB: Yeah, and it turns out that that is one of the things I actually have a bit of a concern about. Video games in some ways are too powerful, they have too much resonance with kids. And it's very easy to overdose on video games and to let the outside world go by. I am constantly trying to limit my kids' video game play. Which kind of seems funny coming from me! [laughs]

WW: Completely. You have two roles – one as a parent, and one in the games industry. And you see how captivating games are – you realise that we have discovered this circuit in their brain and we are kind of exploring and exploiting more and more effectively...

NB: ...taps into an endorphin pouch or something.

WW: Right, yeah – and it's a combination of pixels moving on the screen, they can capture your vision, and we have all these virtual worlds we are trying to deconstruct. It's amazing how complicated these games are, and even a seven year old can get into these systems and engage with them and reverse engineer what is under the hood so quickly. That part I think is going to serve them well going forward in a technological future, where they need to deal with difficult systems and need to figure out the gestalt of a system very rapidly.

NB: Yeah, I remember my four year old son once saying 'I could understand this game a lot better if I could read!' [laughing] He was only four or five at the time.

WW: It proves that games can be a great motivator – I know people that have learned Japanese just because they liked playing import Japanese games; they learned katakana from reading the interfaces.

NB: Exactly. I can remember bringing home a Nintendo one time and the kids had most fun trying to intuit what everything meant.

WW: Right. You try doubly hard when something is in another language – it's another system on top of it.

NB: It just goes to show what a great medium we have built and which others are evolving.

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Strawdog Millionaires

It might be relatively low-profile, but Strawdog has been slowly building a name for itself. With the studio now venturing into the brave new world of self-publishing, **Ed Fear** visited the team to talk over lessons learnt from its past titles and what lies in store for the future...

One of the curiosities of the pre-recession games industry in the UK was the large number of small – really small – developers busying themselves with outsource work in the Midlands. While much talk was on sending assets and code to India and China, many of these little studios were quietly, invisibly, taking care of a large amount of work that wanted to be kept inside these Isles.

Strawdog was one of them. It was formed in May 2004, with staff members coming from studios such as Free Radical, Blitz, Eurocom and even from outside the industry.

But prior to the official founding, many of the team had been working together in their spare time on a concept called *Bugs of War*. It was the excitement around this project, a third-person action game for the PlayStation 2, that inspired the team to leave secure jobs and start anew.

NEW BEGINNINGS

"I think the industry was in a certain place back then – I think we all shared a common frustration, certainly my colleagues anyway, which was that we wanted to make new fresh games," says technical director Simon Morris.

"At the time there was a lot of very 'cloned' games out there – it was the time of the Vietnam war sim – and they were all sort of

brown and grey shooters. Actually, I guess we've not really come that far, but it was a real leap of faith to do this. I was in-between jobs, but these guys... they had a good idea, we felt we had all the bases covered, and so we thought: 'Let's do something with this; let's make this work.'"

“Agile development has little to do with writing code – it's understanding what the publishers want.”

Dan Marchant, Biz Dev Director

But unlike most startups, Strawdog had no deal signed, no funding beyond personal savings and a loan, and no contacts.

In order to keep the creditors at bay while it shopped *Bugs of War* around, the group – still just three people at this point – turned to outsourcing.

"We've kept quiet for the past few years as we focused on outsource work and building our core team," says managing director Paul Smith. "The bad thing about that is that

you're usually under NDA. We were unsung heroes for a long time, but there was a rich seam of work there, and it helped us move around different developers and talk to them. In the background we were always developing our own product."

Together with funding from East Midlands screen media agency EM Media, the team worked on a prototype for *Bugs of War*, which enabled them to shop it around all of the new publishers they were coming into contact with.

While the demo is impressive (*Develop* is treated to a viewing), the timing – at the beginning of the console transition period – wasn't particularly right.

"Unfortunately we were pitching an original game on PS2 right at the time that PS2 was going down and PS3 and Xbox Live Arcade were coming up," says Dan Marchant,

Above, from left to right: Derek Pettigrew, development director; Paul Smith, managing director; Dan Marchant, business development director; and Simon Morris, technical director





Strawdog's *Geon* (above) was originally a PSP title but turned into an XBLA one at Eidos' request

business development director for the studio. "It really wasn't a brilliant time to be pitching new IP. But it helped us build lots of contacts with publishers, and we quickly identified that the game wasn't going to fly in that form on that platform at that time."

And so they set their sights a little smaller, but still within the Sony camp: on the PSP, which was gathering a lot of buzz at the time. The game would become Xbox Live Arcade title *Geon* – but not until it had become a number of different things. At its core a multiplayer spin on *Pac-Man*, the visual presentation changed numerous times during its development before settling on an abstract style. Eidos signed the game, but soon asked the team to make the title for the then fledgling Xbox Live Arcade.

"I think we've learnt that agile development has little to do with writing code – it's understanding what publishers want," says Marchant. "You can't go in and say 'it has to be this platform' because publishers will say 'that's not what I want'. You have to be willing to move to what your customer wants, which in this case was Live Arcade."

GOOD RELATIONS

The rapid change of plans demonstrated the need to flexibility in relationships, as well as in planning business decisions.

"Publishers make those decisions for business reasons – if they don't think they

can sell it then they won't spend the money on it. But of course, that has an impact on your business – suddenly there's a hole in your cashflow. So it's important that you maintain a good relationship so you can smooth those things over – we dropped the PSP version, but signed the PSN version at the same time."

The bad thing about outsourcing work is that you are under NDA. We've been unsung heroes for a while.

Paul Smith, Managing Director

Favourable reaction to *Geon*'s focus on gameplay meant that soon more ports of the game were in demand – it's just launched on PSN, with PC and retail Wii and DS versions set for release soon. The staggered porting schedule has helped the team develop a robust technology suite that encompasses next-gen and handheld platforms, something that such a small group would never have been able to do simultaneously. It's also helped them refine the gameplay over time, based on feedback from critics and users.

"It's funny how we've managed to do the whole cross-platform thing," laughs Smith.

"But over the two years we've iterated the game. We've changed it quite considerably for the PSN version based on feedback on the XBLA version. We didn't really want to learn on a live platform like that, but we've taken on criticism and integrated it into the newer versions."

Although the visual style struck a chord for Eidos, it's clear that the studio has learnt that the abstract aesthetic, name and gameplay mechanics made it a harder sell to customers. Similarly, digital distribution's uncertainty in terms of marketing and visibility has also proven challenging. So, for its next game *Space Ark* – which they say is targeting "every platform" – the sell is being made somewhat easier by harnessing the universal appeal of cute animals.

GOING SOLO

It's clear that the company has come around to the concept of having to sell its games not only to publishers, but to people too. But perhaps the biggest step is that *Space Ark* is their first publisher-less game – they've sourced the funding themselves, once again retaining the IP.

"It's perfect for us," Marchant says.

"We were careful to build up a relationship with Microsoft while we were doing *Geon*, which really helped. That was the easy bit – the hard part was financing it, getting investors in place, negotiating contracts – that's really extended the time from getting the approved slot on Live Arcade to actually starting production."

"It's quite a good time to be a small developer, because of the Xbox Live Arcade, PSN, WiiWare – the scale is much smaller, and as a small developer that's a project you can do yourself, and publishers know you can do it. And that's key; when you're pitching, if the publisher doesn't think you've got the ability to deliver the game they won't sign it, no matter how good the design is. Publishers are actively looking to PSN and XBLA not to make money, but also test new IP at a smaller budget. We're perfectly placed to do that."

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Visionary

Having worked on Pixar classics such as Wall-E, Jeremy Vickers has had his finger on the bleeding edge of computer graphics for years. In the first of two Q&As in this issue looking at medium convergence, **Develop** spoke to him about his collaboration with Geomerics and his thoughts on graphics and games...



You worked for Pixar but have gone solo. Why leave the most respected animation studio in the world?

My story starts way back as a child being scolded by teachers for doodling all over my school work. Luckily I wasn't discouraged and kept drawing all the time. After finishing high school I knew I wanted a career in the arts. In 1997 I graduated from Full Sail University with a degree in Digital Media and landed my first job as a digital modeller/texture artist at Big Idea Productions in Chicago, working on an animated kid's series called *Veggie Tales*. I worked there for three years and that's really where I learned computer graphics.

I was offered a job at Pixar in 2003 and immediately moved with my family to San Francisco. As a lighting technical director – essentially a lighting artist – I worked on *The Incredibles*, *Cars*, *Ratatouille* and *Wall-E*, all the time growing in my responsibilities.

In 2007 I decided that it was time to focus a bit more on my family and moved back to Florida. I now run my own little freelance studio with a friend, working on everything from feature films, to game art, concept design, illustration, theme park design, consulting and teaching. And as for my future... as long as I can be close to my family and enjoy what I do each day, it's all good. I do have some film ideas brewing in my brain that will have to be released before too long.

What's your view on how CG is evolving?

From an artistic standpoint, I'm excited that the CG industry is flourishing and producing some amazing work. On the other hand, I feel that at some point in the near future the frenzy for computer graphics will die down, as the general public sees that good storytelling is what really moves people emotionally, and the technology will become just another tool. So for those of us as artists, the goal will be to embrace the technology as a means to create – and not an end in itself.

Is there a technology or thought gap between CGI and video games, in terms of production techniques and tools?

I still think that there are many differences between film and video games, but the gap is rapidly closing. For one thing, film has the advantage of established cameras when it comes to using cinematography to tell a story. Models and lights can be adjusted for each shot to convey the composition in order

to get the most from every image. Light and color can be cheated in every shot.

In most video games, however, it's harder to tell where the viewer will be at any given time, and everything must render in real time, so having a product like Geomerics' Enlighten to simplify the technical aspects of production and enhance the look of the end product will definitely be worthwhile.

“For us artists, the goal will be to embrace technology as a means to create – not an end to itself.”

Jeremy Vickers, former Pixar artist

Technology is often promoted as a simplifier of our lives, but often becomes something that actually makes life more complex. What was formerly impossible is now possible, but not necessarily to our benefit. When games switched from 2D to 3D it was a wonderful thing, but it also significantly increased the amount of time and energy needed to create a title. So when tools are released that can actually simplify workflow and not just give us more to do, it frees us to focus on what is truly worthwhile: the art and story.

What does Enlighten say to you as an artist, in terms of technology, and empowering artists? How does it compare to other solutions?

I actually have a love-hate relationship with technology. As an artist, all that matters to me is the core emotional impact I can create from my art. I really don't care how to get there as long as my creativity is flowing and I get the result I'm striving for. When computers stand in my way of accomplishing my goal – or at least slow me down with the burden of technology – I tend to switch more into 'hate' side of my relationship with them.

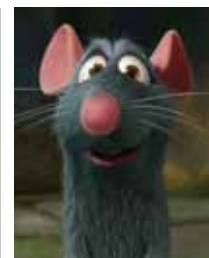
So as an artist who has used Enlighten, it's amazingly freeing to be able to spend my time experimenting with the light, a process of iteration and discovery, instead of waiting for baking passes to finish computing or for renders to process. The other current

methods that exist seem to need artists to also be computer science gurus. If you have an eye for art as well as computer science, this is great. But there are many fantastic artists that will be bogged down by technology and need solutions to let the mundane things fade into the background. Many of us cannot fathom what it would be like if the only way to communicate with friends was to use morse code on a telegraph machine. Luckily, someone made some technology to simplify our communication methods so that anyone could do it. The computer animation and video game world is still in its infancy in terms of being accessible to every artist – but tools like Enlighten are narrowing the gap.

Do you think this game technology can cross-over to the movie world?

That's a very good question. As the gap narrows between film and games, the two similar industries will have more and more opportunities to learn from each other and to grow. As a filmmaker, I look with jealousy on the video game world for the ability to render in real time. Some day soon feature films might be made using real-time rendering techniques. Again, the core principles of storytelling are all that really matter. So if we can create a film that is emotionally engaging using real-time software, then it will happen. If I can have a tool that, as an artist, will allow me to flow in creativity, I will most definitely use it.

www.geomerics.com



How different or quicker to produce would the likes of Ratatouille (above) or Wall-E (below) have been if made with game technology?



The cross-over conundrum

It's long been said that modern game technology can cross-over to other mediums – but how?

Develop caught up with Traveller's Tales' Alan Murta and BAFTA-award winning children's TV producer Jocelyn Stevenson in the second of our Q&As looking at artistic convergence...



You've both brought very different skill-sets to this project; can you give us a little background on your careers so far?

Jocelyn Stevenson: I started as an assistant at the Children's Television Workshop, the producers of *Sesame Street*, about 35 years ago, and have been in children's television ever since. I love it. I've been writer, creator, head writer, producer, and executive producer on over 40 properties, including *Fraggle Rock*, *Jim Henson's Ghost of Faffner Hall*, *Bob The Builder*, *Barney and Friends*, *Thomas and Friends*, *Mopatop's Shop*, *The Magic School Bus* and *What's Your News?*

Alan Murta: I began my career as a lecturer at the University of Manchester doing research into computer graphics and virtual reality. In 2000 I made a move into games, starting out at Elixir in London and later moving to Traveller's Tales in Knutsford where I now work as a senior tools and render technology programmer.

How did this collaboration come about?

JS: I co-created the series with Chris Dicker, the designer. I was responsible for the words and he oversaw the look. Because of my background in puppets, I suggested that we use 'performed animation' – a combination of motion capture and digital puppetry – to bring characters to life. Because of his background in games, Chris suggested we take this idea to Jon Burton at TT Games for technical expertise and possible funding. We received both. *What's Your News?* was born.

AM: Chris Dicker came to us – the render technology team – with various concept sketches and our task was to come up with a way of turning these into CGI, preferably using a (near) real-time renderer. We wanted to avoid the significant time and system costs associated with traditional software image creation. Instead our approach involved adapting existing a GPU-based game engine to provide a cost-effective solution using a small number of render PCs. It was a great collaborative experience with Chris, the art team and the render technology team working together to finalise the visuals.

What has the collaboration taught you?

JS: Producing *What's Your News?* presented me with a vertical learning curve. No one had ever used this particular production pipeline for a TV series; we were making it up as we

went along. It became clear early on that the two cultures – television and games – were completely different, with different business models, terminology, pace and priorities. But once we figured this out, we could work with it – discovering how and where to combine strengths. And we all plan on repeating the experience. We all want to apply what we've learned so that next time it will be easier.

AM: It was a liberating experience to be freed from the usual game constraints in which all images must be drawn in no more than a few milliseconds. The luxury of having a few seconds to spend on each animation frame allowed us to focus a lot more on image quality. One significant difference between game and TV production is that the former discipline allows us to continually tweak the graphics technology, almost until the finished title goes out the door. In contrast, making the TV show forced us to deliver key tech early on, then lock down as much as possible for the series render phase. But it is always good to be presented with new challenges and we are keen to explore further these.

“The real advances in CGI still tend to come from the academic sector – we just adapt that for our own uses.”

Alan Murta, Traveller's Tales

BAFTA Videogames showcased *What's Your News?* as part of their Crossover Event and, of course, BAFTA's heritage was established within film and TV. How do you see their role progressing in terms of these collaborations?

JS: BAFTA made video games one of its three 'pillars' about four years ago, and has played a progressively more influential role in bringing the TV, film and video games art forms together, mostly as mutual 'appreciators'. As the professionals in the different industries come to understand each others' expertise, the collaborations will naturally follow.

AM: With video games now being a major player in the entertainment sector, it is natural that its contributions are recognised by the BAFTA organisation. BAFTA has been

quick to identify the potential alliances between games and traditional media.

Alan, advances in animation and CGI have often been led by film and TV, given their bigger budgets. As the games industry evolves and converges with these industries, do you see that changing?

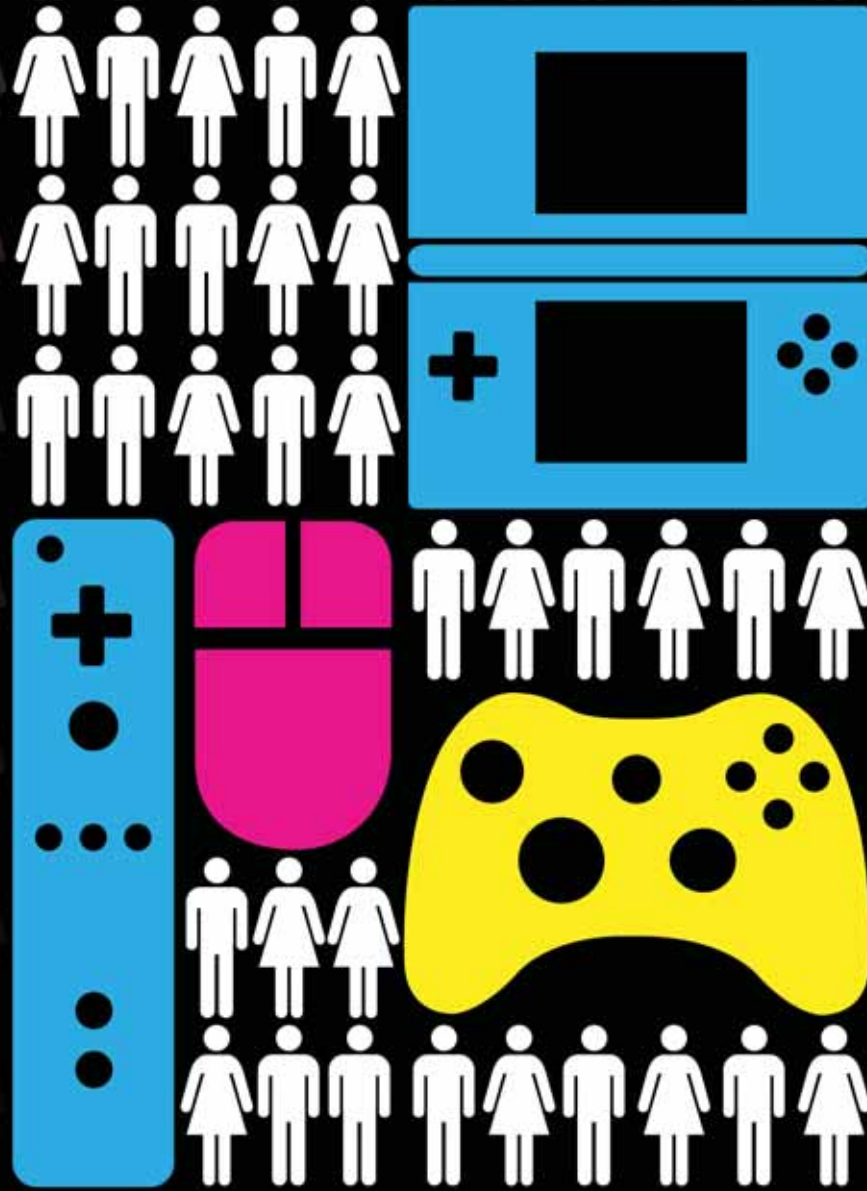
AM: I would say the real advances in CGI still tend to come from the academic sector, which effects companies and games developers then adapt for their own uses. Film studios often have the resources to apply the techniques to the point where their synthetic results are indistinguishable from the real world, or which will conform precisely to any desired art style. Game developers will adapt these innovations for real-time use. However, there is certainly a convergence in what is achievable in related disciplines, and both are using shared tools and approaches to tackling effectively the same problems. The only difference is one of scale, and this distinction is continually diminishing.

Jocelyn, similarly, the forefront of scripting and development still belongs to film and TV. Do you see a day when you'll be storyboarding the latest video game rather than a children's TV programme?

JS: Possibly, though not being a gamer, I'm not sure I'd be very good at it. I do think it would be really interesting to work with a games developer on the same property – a property for young kids – developing it for both TV and a game simultaneously, sharing the discoveries we make in our relevant areas as a way of informing and building the property creatively. It would end up being something neither group could have done on its own. Something new!
www.ttgames.com
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What's Your News? (pictured above and below) is a joint effort from Traveller's Tales and kids' TV guru Jocelyn Stevenson





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Sight—geist

As Hollywood begins to invest itself heavily in 3D, everyone is talking about its potential in developing games. Is this a genuine vision for our industry? Or is it a mirage? Over the next three pages, **Ed Fear** offers a guide to what 3D could really mean for games development...



Everyone's talking about it, but is 3D really something you should be keeping in mind for future games? **Ed Fear** visits Blitz Games Studios to take a look at their technology for 3D gaming...

Stereoscopic 3D is a hugely misunderstood thing. One the one hand, the TV manufacturers' PR and marketing juggernauts are getting louder and bigger. We're told that '3D' is the future of entertainment; that it will revolutionise the way we'll view content and open our eyes to wide new worlds. One nameless daily free London paper even went as far as to say that soon we'll have 'characters and effects literally leaping out of the screen' at us. Impressive stuff.

Take a look at any of the internet's various forums, however, and people are slightly more cynical – perhaps fairly, due to the understandable security concerns that could result from Nico Bellic bursting out of your TV. And in a more realistic sense, at the doubt of having to wear glasses while playing games or watching films. Plus, with many consumers having just spent hundreds of pounds on a new HDTV after being told that was the only true way to experience games, now the boundaries are being shifted once more?

Speak to anyone involved with the 3D world and they'll admit that there are obstacles to be overcome before the technology can be as ubiquitous as they're predicting – but the message is clear; that they will be overcome is inevitable.

BLITZ SPIRIT

One of the few companies already making headway into the stereoscopic 3D space is Blitz, who've gone as far as to include support in their BlitzTech middleware.

Andrew Oliver, Blitz's chief technology officer and the spearhead behind the move into that extra dimension, admits that the situation right now isn't brilliant.

"It's not a question of if it'll catch on, but when. The current situation is that hardly anyone's buying 3D TVs, so they're very expensive because they're essentially prototypes," he tells us. "As soon as it goes into mass-production – and Sony has announced that it's bringing the polarising technology to the Bravia range, and it won't be that much more money – then 3D will start to take off."

The other problem is one of content – even if you do have a 3D set, and many people do without even knowing it, there's nothing

with which to show it off, keeping it a feature that many manufacturers are reticent to shout about.

"It's a chicken and egg situation at the moment," says Oliver. "If a shopkeeper says 'this TV can do 3D' then the consumer will want that proved, but there's no content to show it off. But those TVs do have 3D – Samsung and Mitsubishi are selling them but keeping quiet about it. So in a sense, what we're doing is kind of a call to arms. We can say that we're accelerating the process, because it's in our technology and we're licensing that out, and it's already working on consoles."

EPIC CHALLENGE

So, that's the 'when' – or, perhaps more realistically, the 'if' – covered. What about the 'why'? Why would a company that has made its fortune on licensed games for US publishers spend all that time and effort making its proprietary technology capable of displaying 3D images?

The genesis of the decision was Oliver's visit to SIGGRAPH last year, which focused on how the movie industry was going 3D.

“The reality is that 3D gaming is still a while off, even to early adopters, and likely won't see major support in this console generation.”

"Epic was there, and Mark Rein gave a demonstration of *Unreal Tournament 3* in 3D on a really high-spec PC. After the display, someone asked him when we'd see *Gears of War* in 3D, and his response – that neither the Xbox 360 or PS3 were powerful enough to run a 3D display – stuck with me slightly.

"I thought: 'Why can't they do it?' After all, these systems are engineered for graphics, and they've really got some power – how hard can it be?" He smiles: "It turns out that it's a lot bloody harder than we thought."

The motivation was that Oliver wanted to show that the technology could be put into a

real game, not just a technology demo. But there are some issues to overcome; issues that make Rein's statement somewhat true. Firstly, the 3D 'standard' that exists – more about that later – specifies that the image has to be 1080p. Secondly, unless you want the image to look stuttery, you need to be hitting 60 frames per second. Given that games like *Gears of War* are getting 30fps at 720p, that's more than a tall order. And it gets worse: the TV needs to display two images per frame – one for each eye – essentially doubling that again.

"Now I understand why Mark Rein said it was impossible to do – because it's hard. How many games are there that run in 1080p and at 60 frames per second, and then are comfortable with essentially doubling that? Still, on the other hand, it's really pushed our tech. It's about getting the engine running really fast – we've had to push it to get faster and faster and faster to get the bloody thing just working."

But while Blitz can make the tech work now – we're treated to a proof-of-concept based on one of the upcoming titles from its Arcade division, and the effect is certainly impressive – is there anyone else that's going to want to put the effort in?

Beyond the current scarcity of 3D TVs, the one thing that's scaring a lot of developers – including ones that told us they were experimenting in this area themselves – is the lack of a unified standard. Currently, the way a Samsung 3D set operates is different to a Sony TV. Blitz's way around this is to write different drivers depending on the TV type, but admits that this isn't optimal and would require testing on a huge number of different TVs.

So, while companies like Sony may be showing their intention with displays at events like CES, the actual reality is that 3D gaming is still a while off – even to the early adopters – and most likely won't see significant support on this console generation.

But with a ratified standard, a bigger install-base and next-gen systems designed with it in mind – which, with Hollywood proclaiming 3D as the 'future', isn't unlikely – we'll all be enjoying that extra dimension. So long as you're okay with dangerous objects 'flying out' of your TV, that is.



3D GLASSES: A COMPLETE GUIDE

1 RED & CYAN (ANAGLYPH) GLASSES

These are the type of glasses that have been around for over 50 years. The two images are given filters to make one red and one cyan, with the coloured lenses effectively blocking out its own colour to deliver different images to the eyes. Traditional sets made from paper often suffer from focus issues, and the colorisation of the images naturally effects the palette of the image, with greyscale images being most effective. However, this technique has been used as recently as last year, with Disney's *Hannah Montana 3D* concert being screened using this technique.

2 IMAX 3D / LINEAR POLARISATION

These separate the two images by polarising some of the light horizontally and some of it vertically, with each lens only accepting one type. This works, but you have

to keep your head still, because otherwise the lenses are at an angle and the effect doesn't work. For that reason, most IMAX or theme park 3D attractions are kept short, because otherwise people start to relax and move their heads – at which point it goes out of focus. They work well for what they are, but would never work for a whole film or game.

3 REAL-D / CIRCULAR POLARISATION

If you go and see *Bolt* or any of the other upcoming 3D films, you pay a pound extra for a pair of these glasses, but get to keep them for the future. Devised by a group which broke away from IMAX, realising that a digital format was necessary, they created glasses that polarise light circularly. It projects the image with the light spiralling clockwise and anti-clockwise, again with each lens only accepting one type, thus delivering the two images to the respective eyes. The

circular nature means that the angle of the viewer's head is not an issue, making it suitable for feature films and games. The low cost of the glasses means that they don't have to be reused and cleaned by cinemas.

4 LCD SHUTTER

One of the other systems to find itself with an increasingly prevalent usage on current sets, LCD shutter glasses have lenses filled with liquid crystal that are normally transparent but can be made opaque when a voltage is passed through. As such, the set alternately darkens each lens in synchronisation with the TV's refresh rate, meaning each eye sees a different picture. However in order to make this work, the TV has to be running at 120hz – twice the standard refresh rate – otherwise visible frame-rate issues can be observed.



Blitz's Andrew Oliver models one of the various types of 3D glasses. In a quiet month this would've made the cover...

Overview of current 3DTV Technology

Courtesy of Blitz Games



STEREOSCOPIC - 2 VIEWS



Active



Passive

MULTI-VIEW



Auto-Stereoscopic



- DLP Projectors
- DLP Back screen TVs
- Plasma



LG
Samsung
Panasonic
Mitsubishi
Texas Instruments

Input Formats



Alternating frames



Chequer board



**Linear
Polarised
LCD**

**Circular
Polarised
LCD**



iZ3D
Zalman



Hyundai

Input Formats



Horizontal interlace



Vertical interlace



Top and bottom



Side by side



**Parallax
Barrier
LCD**

Lenticular

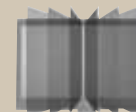


NewSight
Sharp



Philips

Input Formats



8 views per frame



2D + Pin Art Depth

ADVANTAGES

Over 1m TVs like this sold
Affordable TVs
3D Ready standard

ADVANTAGES

Very clear 3D images
Nice LCD display
Switchable 2D / 3D
Cheap glasses

ADVANTAGES

Parallax Barrier is 2D/3D switchable
No glasses!
Single person/position = good

DISADVANTAGES

Large TV only
Expensive, flickery shutter glasses
Must be 60 frames per second

DISADVANTAGES

Currently expensive
Fixed 3D resolution
Filter reduces brightness
Two standards (Linear/Circular)

DISADVANTAGES

Multiple person/position = bad
Limited viewing angles
Multiple input format problems
Fixed resolution
Technology not quite there

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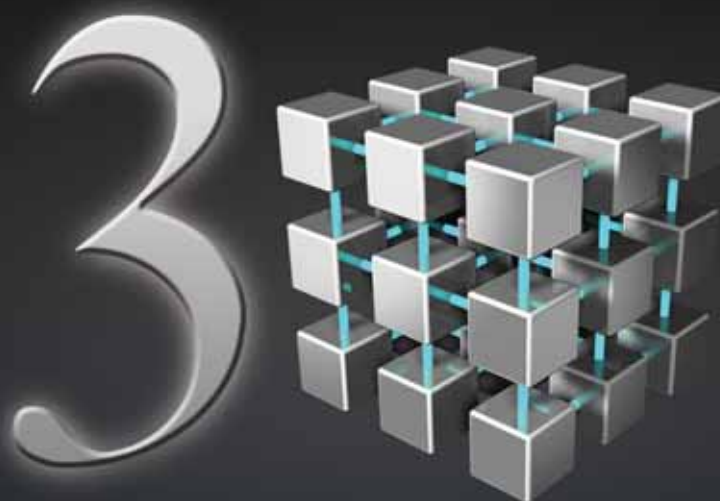
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House of the Tech

We've looked at some emerging technologies, but what about the future for your bread-and-butter engine? Kuju's technical director **Adrian Hawkins** discusses its recent tech decisions and how it's preparing for the next generation...

As readers of *Develop* will have noticed in our supplement last year, at Kuju we have a diverse set of studios developing a broad set of games. We embrace this diversity, as it's what has made us successful in what can be a difficult market.

Historically speaking, we've built a lot of technology ourselves, and used it widely on many products. Our current "Heracles" 3D renderer has achieved excellent return-on-investment, to date shipping nine unique titles (such as *M.A.C.H.* and *EA Rail Simulator*), and more in the pipeline, with previous generations of our technology achieving similar coverage.

As we've grown, we have freed our studios to make the right technology choices for each game, rather than imposing a 'one size fits all' solution – and we are very committed to continuing this philosophy.

Take, for example, our use of BlitzTech on the recent highly acclaimed *House of the Dead: Overkill* for the Wii. Blitz Games Studios had successfully used its technology on a number of its own titles, and at around the time we were beginning this game with Sega, Blitz was looking to build on its technology's success by licensing it out to other developers. We rapidly identified a good three-way fit between the capabilities of their

technology, the requirements of this game, and the Wii expertise of our Kuju London studio (now Headstrong Games).

We worked closely with Blitz to customise their flexible technology to the game's needs,

“We've freed our studios to make the right technology choices for each game, rather than imposing a 'one size fits all' solution.”

and applied a number of our own pieces of Wii code to enhance it. For example, we integrated our established particle effect solution, added our own water rendering technology, and other custom effects such as gore decals. This has resulted in some stunning visuals in *House of the Dead: Overkill*, now amongst the best Wii titles on the market.

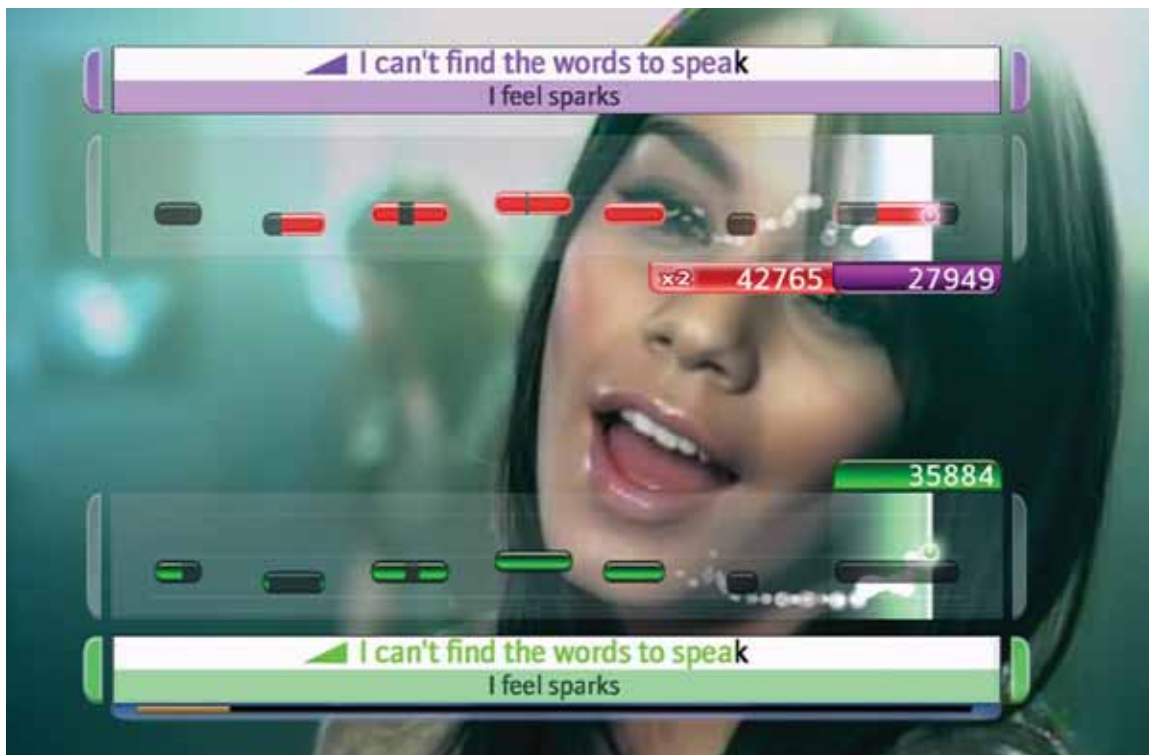
Elsewhere in the group, our Chemistry team have become experts in Unreal Engine 3. They have pushed the engine to do some surprising things – not always the expected

traditional shooter elements. Our content creators love the freedom and power Unreal has given them, and are extremely productive. I genuinely look forward to the deliveries made by our Unreal based teams – the art they've achieved with this tech will blow you away.

We also enjoy working with other middleware providers – we can't expect to build everything ourselves, and there are some great third party components. We've begun a relationship with Scaleform, providing us with its market leading GfX user interface technology. Our decision to adopt was driven by a number of factors – a high profile, big budget title deserved a correspondingly top-notch user interface. Secondly, we wanted to hit the ground

*Doublesix's Burn
Zombie Burn*





One of Zoë Mode's Disney Sing It! titles. We're pretty sure it's not the High School Musical 3 one, though, because we don't remember this song

running, without spending months engineering the UI (and we had typical milestone pressures). Thirdly, we were impressed by the high performance of Scaleform – we've attempted to implement Flash renderers in the past with mixed success, performance being a key challenge.

Then, of course, is our recently announced 'Fabric' technology. This is about being truly many-core; many have failed to fully use the massive processing power that's already there (and I'm not exempting us from this in the past – we wanted to do more). Just sticking physics processing on one of the Xbox 360's CPU cores and AI on another, or treating the PS3's SPUs as a set of slave coprocessors for animation is not true multi-core programming. It won't scale to many-core devices – by which we mean systems with tens or hundreds of processing cores.

Reading the coverage since our announcement, I've been gratified that people feel more needs to be achieved with the current generation of hardware – and

moreover that they think it is actually achievable. To make this technical leap you have to take a fundamental look at how you build your code, right up to the high level game components. It entails training much of your programming staff, and getting them into a streamed, job-based mindset.

I've been gratified that people feel more needs to be achieved with the current generation of hardware – and that they think it is achievable.

You might ask why we're making this investment, rather than totally rely on middleware. There are lessons from history here. A number of people went down the

Renderware route, and I remember people at the time saying "Why don't we just use Renderware for everything?"

It seemed to be turning into the de-facto standard for game development. Then, for those that followed this path, the rug was pulled from under them by its removal from the market, leaving them reeling. And, to be honest, even back then when Kuju was smaller, we just didn't believe a 'one size fits all' solution was sustainable or that Renderware was the panacea that some made it out to be.

It's deeper than that though: we are utterly driven to squeeze the best performance out of the current multi-core platforms, and what's coming on many-core in the next two years. I'm not pretending we're alone in this drive; others will be treading this path. Right now, there just isn't something on the market that does what we want.

To be absolutely clear, this is very much an internal project – we're doing it to make our games better, not seeking to license it out as middleware; that just isn't where our business focus is at. I'm looking forward to talking to people about our experiences, though.

We remain true to our diversity and policy on no central imposition – and I wouldn't dare claim that all of our games would be using Fabric in two or three years from now. I'm sure the many far reaches of Kuju will do more specialised things that this tech isn't the best choice for: I can easily see us continuing to use Unreal for games where it makes sense, for example.

Fabric has been co-developed by Headstrong Games, Zoë Mode and doublesix, who all see a core of common technical aims, despite their varied product line-up. Ultimately they are going to be targeting the same platforms, will hit the same performance constraints, and need to be competitive. Just wait and see what we're going to achieve.

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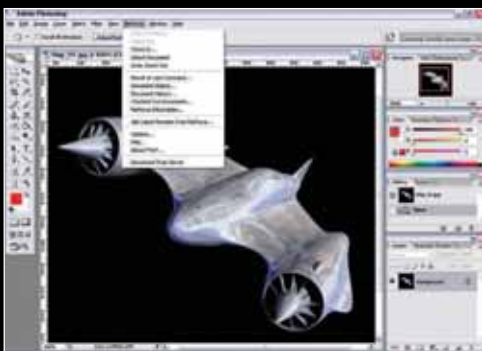
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From bitter to better

WHETHER YOU HAPPEN TO argue the causality in terms of cow farts, algae blooms, Schwarzenegger's promotion of the Hummer or statistically irrelevant noise, the actual effects of climate change clearly require changes in human endeavour. And without stretching the metaphor through breaking point, there's surely a similar requirement when it comes to the wider implications of the world economic climate on the games industry, or precisely, the tools and middleware sector.

Just as the property bubble has finally popped, so it is with the game studio bubble, especially in terms of the top-of-the-foodchain publisher-backed developers. Although it may prove unpopular to say so, frankly for too long there were too many studios making too many, too similar games. Even the best of them were only marginally profitable.

Combine the widespread layoffs of the past couple of months, with publisher retrenchment and the lack of opportunities for VC funding of content, and it's tricky to see 2009 as anything other than a difficult place to do business for tools and middleware companies. Although they may claim that their solutions will save studios money in the long term, that initial investment will prove difficult to obtain at such a timid time.

Of course, getting anyone to deviate from the 'everything's going great for us' line is almost impossible. Maybe in six months time when things have filtered through the value chain, the fallout will be better discussed. But whatever smart money is left on the table would seem to be well placed backing increased mergers and acquisitions. Hopefully then, by the time everything's played out, whoever's left standing will be able to focus on the profitable bits of the market that really will drive future growth.



Jon Jordan

jon.jordan@intentmedia.co.uk



< CODING >

MOBILE TECHNOLOGY ON THE MOVE

Ideaworks3D opens up its Airplay Partners Program for mobile tools and middleware, as **Jon Jordan** discovers...

EVERYONE LIKES TO HAVE friends, but when it comes to technology making your product play well with the others has an additional financial advantage. Programmes such as Epic's Unreal Technology Partners have ensured companies can plug into larger technology frameworks, providing a relatively seamless option for customers and another sales channel for the smaller tools and middleware companies too.

London-based studio Ideaworks3D is now bringing that approach to the mobile sector via its Airplay development and deployment solution with its Airplay Partners Program.

"There's a perfect storm brewing in native smartphone development," reckons CTO Tim Closs. "Performance at the upper end of the device spectrum, increased publisher development budgets on those platforms, and high user expectations of quality levels – driven primarily by iPhone – means that mobile middleware can now play a key role in serving the ecosystem."

Airplay enables studios to create native games and applications for platforms such as Symbian, BREW, Windows Mobile, Linux, and iPhone using a single binary. It does this by implementing platform-specific execution environments, as well as a scalable graphics pipeline.

"We have publishers using Airplay to deploy a single game to iPhone, multiple smartphone platforms such as Series 60, Windows Mobile, N-Gage, and netbooks. The single binary approach has great value across the smartphone platforms, as it means the quality assurance cost and duration is vastly reduced," Closs says.

The partners program, which launches with NaturalMotion's morpheme 2.0, will extend the choice for mobile developers by providing a wider range of technology that also fulfil the cross-platform approach.

"The idea was kicked off at the end of 2008 when an independent Japanese developer, which is building a game for N-Gage using Airplay, needed to use some console/DS middleware within the title," Closs reveals. "The middleware provider ported its offering to Airplay without any input from us. It made us realise there was the appetite for this."

As for the NaturalMotion deal, Closs says the technical work was relatively straightforward.

"In the case of morpheme, Ideaworks3D undertook the integration work, which took

Airplay Partners Program

Price: Available on request

Company: Ideaworks3D

Contact: +44 8456 434 969,

bizdev@ideaworks3d.com

www.ideaworks3d.com

about two weeks. However, in another case, the middleware provider did all the work and it took them less than a week. One of the great things about Airplay is that it provides great support for all C/C++ standards and common open source libraries, which means porting middleware, applications or game engines from PC is usually very easy."

Of course, one of the key restrictions in this market is the power of the target devices themselves. New smartphones such as Toshiba's recently unveiled TG01 may now be offering 1GHz processors, but the bulk of the market isn't so well endowed.

"Airplay's base specification has always been ARM9 chips rated above 150MHz, so we are looking at solutions which can augment the native gaming experience on these and higher-powered platforms," Closs explains.

"The partnerships make most sense when the middleware offering contains a high degree of value in the offline tools, and any associated runtime is sufficiently light and optimised for mobile. It will vary between solutions; for example, some might require hardware floating point, some might require hardware graphics acceleration. We will make it clear to developers which platforms are appropriately supported for each partner offering."

Another contrast from the console space is product budgets and the consequential impact on licensing fees. Ideaworks3D will work with providers to understand the market.

"Budgets are much smaller than console development but they can be not far off handheld development," he points out. "Ultimately we leave the business model up to the provider; they have to find a model which works for mobile developers but also sits happily with their existing models."

The firm hopes to have around half a dozen companies officially signed up to the program by the summer of 2009 and reckons it would make sense for a further four to offer their technology.





< ART >

THIS YEAR'S MODEL'S STRIPTease

Luxology is slowly revealing the new features of modo 401...

modo 401

Price: \$895

Company: Luxology

Contact: +1 650 378 8506

www.luxology.com

MAYBE IT'S A MARK of getting older that anticipation becomes as pleasurable – if not more – than the main event. If that's the case, then technology companies are becoming increasingly mature. At the same time Android phone users have been on tenderhooks thanks to the 'partial rollout' of its Marketplace, so Luxology has been slowly showing the ankles of the latest version of modo.

Currently being teased out as a 'partial reveal' on the company's website, so far new capabilities include volumetric lighting, fur, replicators, and more light and shadows options.

"Modo 401 has been one of the most challenging new releases for our development team," says chief architect Stuart Ferguson. "As modo has matured, it has required our engineers

to expand the feature set with new and powerful capabilities without sacrificing the ease of use and smooth work style that has been a hallmark of modo's user interface design. Hopefully as people explore this new version, they'll see the potential inherent in the features we've added, while feeling the reassurance of a system that has grown to fit the industry's needs."

More realistic lighting is always one area of development for art tools. In modo 401, the volumetric lighting solution enables you to simulate the effects of scattering due to small particles in the air. You set up the effect using the preview renderer, while you can texture them via the shader tree.

More generally though, modo's rendering system will receive numerous enhancements in 401. One such is Light Linking, which enables you to link lights to specific meshes so only they are illuminated.

The quality of the interaction between light and transparent objects is also improved by features such as

the dispersion options, so you can colour refraction rays, and controls for setting up the properties of reflective surface layers used on cars and the like.

Underlying these are updates to modo's rendering core, notably the preview renderer. This will now update immediately as performance is no longer dependent on scene complexity. You can also use any camera you want to, and the global illumination-style options from the offline renderer are made available.

As for the fur system, it works as collection of sculpting and rendering tools that enable you to grow and arrange fibres to model materials such as fur, hair, grass or tinsel. It is integrated within modo so you can use it in conjunction with texture maps, while the direction of growth can be controlled using directional texture maps. These can be sculpted like vector displacement maps, or you can use curves as guides. Attributes such as length, flex and root bend can be used to animate the fur.



Replicators are a way of adding vast amounts of detail to your scene at render time, but because they work on an instanced system, there is little additional processing overhead. The system means any mesh item can be placed in scene, with its density, rotation and size controlled using modo's texture layers.

Although no release date for modo 401 has so far been announced, purchasers of the current version, modo 301, will receive an upgrade to modo 401 at no additional cost when it's released, probably sometime in March.



< CODING >

LIGHTING UP UNREAL

Geomerics' Enlighten technology is now go for Unreal Engine 3 users...

IT'S SIMPLE TO KNOCK out a press release telling the world what you're planning to do. Doing the actual work takes a lot longer. It's particularly the case with technology, where there's a definite flow between the relatively easy bits such as press releases and business loose ends, and the harder aspects of the process, such as hacking through alpha and beta versions to early adopter testing, before ending up with the shiny final product.

Still, at least you get to send out another press release when the process is complete, which is exactly what UK lighting specialist Geomerics has done now that the integration of its Enlighten technology within Epic's Unreal Engine 3 IPP.

The end results are certainly worth talking about. As a standalone solution, Enlighten is a real-time radiosity lighting engine that enables you to quickly iterate and experiment with in-game lighting, as opposed to dealing with the current time-consuming baking processes that only create static lightmaps.

Significantly, though, one of the obstacles to Enlighten's wider adoption is that it has to be integrated within the game engine. In this way, the time spent getting it working in Unreal Engine 3 and the Unreal Editor Environment has been multiplied across the large number of studios who are using Unreal. They now gain access to Enlighten for free; at least in terms of integration time, if not financially. Indeed, toggling one flag will turn all your Unreal Engine 3 lights into Enlighten lights.

Geomerics' CTO Julian Davies reckons the technology will provide plenty of upside. "We have people falling over themselves to use Enlighten to create static lightmaps," he says. "Up to this point, in Unreal the standard way of creating in-game radiosity is to add a large number of

backlights, which is a time-consuming process in terms of placement. Then, when it's done, you have to bake them into the lightmap so you hit 'bake' and go away, make a cup of tea. With Enlighten, we provide people with the ability to edit their lighting in real-time and then bake it out in a short period of time."

And it's this interactivity that should be the main selling point, as the lightmaps are immediately updated as you change your lights' positions or the surface properties of the environment.



Enlighten

Price: Available on request

Company: Geomerics

Contact: +44 1223 450170

www.geomerics.com

More subtly, using Enlighten should also boost the consistency and quality of in-game lighting. Spherical harmonics obtained directly from the radiosity are used to improve character and prop lighting, better parameterisation removes distortion, while geometry that isn't visible is removed from the lightmap to further increase performance. Geomerics also claims using it will enable a threefold increase in detail for the same memory footprint. In terms of platform usage, Enlighten runs on one of the PlayStation 3's SPUs and on the second core of the Xbox 360.

However, as with the technology development process itself, making the most of these new capabilities is another issue that can take longer to accomplish than expected. Gaining the ability to light a game in a similar way to how a cinematographer deals with a film set isn't a skill that comes out of a box, and it's this which remains the long term potential of Enlighten.

GUIDE: 3D ENGINES

Beyond the likes of Unreal and Gamebryo, there's plenty more choice when it comes to game engines – especially for cheaper productions. But that doesn't mean they're any less featured, discovers **Jon Jordan**...

It's a mark of how middleware has been accepted by the games industry that so many different game engines are now available for licensing. This is the second engine roundup *Develop* has run in recent months, and to be honest, it wouldn't be too difficult to do another one next month either.

For example, US developer Terminal Reality has just announced its own contribution to the world of game engines with the release of previously internal technology, Infernal Engine, for licensing by third parties. Indeed, part of the unveiling was the news that a couple of studios were using it.

Of course, in the long term, there's more to being a successful middleware company than having a usable piece of technology, even one that's used by other companies. Continual sales and marketing, not to mention an iron-handed commercial director and friendly backers, are also required. The

latter point has been underlined by Emergent's trousering up of \$12.5 million in yet another round of funding. The company says it will use the cash injection to back its new Gamebryo-based product, to be revealed at GDC. Better start working on 'Develop engine guide #3' now...

TRINIGY



TECHNOLOGY

Vision 7.5

CLIENTS

4Head, 16Tons, Firefly Studios, Neowiz, Ubisoft, Zed Group

PLATFORMS

PC, PS3, Wii, Xbox 360

PRICE

Available on request

CONTACT

+49 7121 986 993



Trinigy's Vision engine is available in a entertainment stimulus package

www.trinigy.net

It's a mark of the usefulness of game engines that German outfit Trinigy finds its Vision engine being used in everything from standard FPSs to MMOs, serious games and industrial simulations. The complete engine comes with the vForge creation

editor, vLux lighting editor, and a Lua-based scripting language.

Also available is a new three-month prototyping deal, labelled the 'entertainment stimulus package', aimed at helping young startups secure publisher funding.

GARAGEGAMES



TECHNOLOGY

Various, including Torque Game Engine Advanced

CLIENTS

Many, including Black Jacket, EA, Hothead, NCsoft, Ubisoft, Wideload

PLATFORMS

Browser, iPhone, Linux, Mac, PC, Wii, Xbox 360

PRICE

Ranges from \$100 to \$1,495

CONTACT

via website



As well as 2D games, the main versions of Torque can handle console 3D graphics

www.garagegames.com

Thanks to its range of engines, from the console-class Torque Game Engine Advanced through to specific platform versions and the simpler 2D Torque Game Builder, GarageGames has opened up the casual web and console download market for both

students, prosumers and industry startups. It offers a cheap and flexible pricing system, while community options, as well as art packs and tools, complete the ecosystem. And watch out for its new product Torque 3D, which already looks incredible.

UNITY TECHNOLOGIES



TECHNOLOGY

Unity 2.5

CLIENTS

Many including Cartoon Network, Freeverse, Serious Games Interactive, Yogware

PLATFORMS

Browser, iPhone, Mac, PC, Wii

INTEGRATION WITH

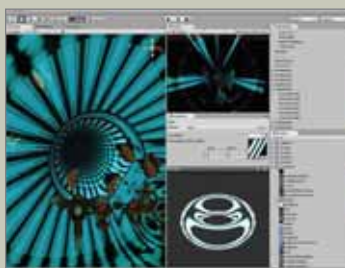
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The new version of Unity support Vista development

www.unity3d.com

The big news from Danish engine company Unity is its next release, version 2.5, will finally provide the much anticipated support for development on Windows. Previously, creators were restricted to using the editor on Mac platforms.

Of course, there will be plenty of new features too, including a completely customisable, tabbed editor with over 130 new API entry points, and drag-and-drop support for 3ds Max also added to the mix. With Criterion's Lau-Kee on board, they could go far.

VICIOUS CYCLE



TECHNOLOGY

Vicious Engine 2

CLIENTS

Collision Studios, Escape Hatch, Perpetual FX, Smack Down

PLATFORMS

PC, PS3, Xbox 360

PRICE

Available on request

CONTACT

+1 919 370 3000



Vicious Engine 2 uses a node-based material system

www.viciousengine.com

The release of Vicious Cycle's second engine has seen the US middleware firm focusing on high-end PCs, PS3 and Xbox 360, particularly in terms of the new graphics and lighting features. It builds on the visual editor approach of its first engine however,

which is still available for platforms such as PSP and Wii. VE2's dynamic lighting includes ambient occlusion and a node-based material editor. It also contains an extensible scripting system with full integrated debugger and profiling tools.



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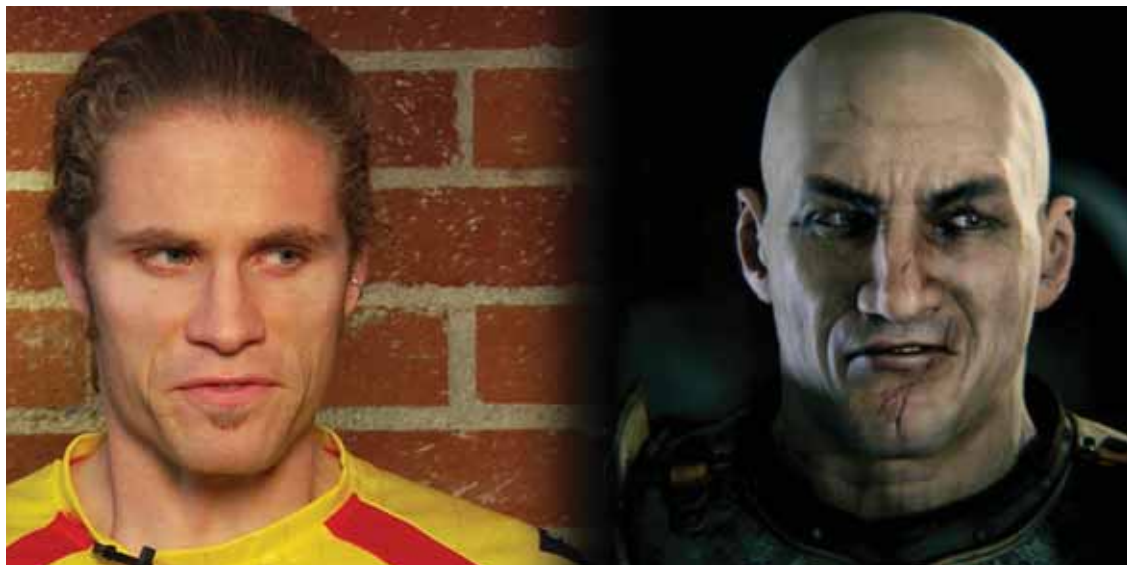


www.centroid3d.com

KEY RELEASE

Time to lose the helmet

Image Metrics' facial animation now comes in four tiers, **Jon Jordan** discovers...



Categorising Image Metrics' facial animation technology into a traditional game tools and middleware slot has always been something of a semantic task. Officially it's a service, akin to motion capture but for faces. The truth is a bit more complex, however. While developers can buy and run their own in-house mocap studios, Image Metrics' smarts are a black box process that the company controls.

This shouldn't be an issue in terms of production though, as all a customer needs to do is provide access to their video footage of the facial performance they want to use in-game – no markers required. Image Metrics' client-server system analyses the frames and sends the required deltas to the server, which spits back rig-ready animation curves in Maya, 3ds max or whatever other software package you're using.

"It's a good model because it means we can roll out any technical changes immediately on the server and give the clients the option of using it," explains Kevin Walker, Image Metrics' CTO and co-founder. It was partly on the basis of his work into computer vision that Image Metrics spun out of research being carried out by a number of academics from Manchester University.

Another important aspect of this online approach is that the company can process a lot of footage at the same time with few bottlenecks in terms of bandwidth or manpower.

"Scalability really isn't a problem for us," says Michael Starkenburg,

who recently became CEO following a stint as COO. He was also instrumental in the company raising \$6.5 million in second round funding during December 2008 to bankroll its current sales and marketing push.

"We did 400 minutes of cutscenes for *GTA IV* at the same time as 55 minutes for another huge game that

The games business is a very structured sales process. You have to pound the pavement; talk to every producer.

we can't take about yet," Starkenburg explains. "Our biggest problem is people's perception of what we do. We have to get into a game's production at the right moment, either right at the start or late enough that everyone's freaking out about how much work they have to do and have started worrying about which characters they are going to have to put masks on."

It's these circumstantial limitations that the company is looking to overcome thanks to an infusion of new staff with experience previously gained with game middleware companies such as Emergent, Havok and NXN.

"The games business is a very structured sales process. You have to pound the pavement, know the status of every game in development and talk to every producer," says Starkenburg.

The option for studios to get test footage processed for free is one of the ways he hopes to get Image Metrics further accepted within the industry. It's already been used in some high profile games including *The Getaway*, most of Rockstar's recent releases, and the *Killzone* series. Breaking into more common-or-garden titles is a new goal for 2009, however.

Helping in that regard is the announcement of four tiers of service. The cheapest option is Value, which the company describes as costing around half that of standard facial animation; useful for generating large volumes of facial animation for secondary in-game characters or for pre-visualisation purposes. The next level is Pro, which is for in-game cutscenes and provides for the capture of subtle facial movements. Premium provides for the 'pore-level analysis of facial movement,' while the final option, designed for triple-A movies, is Elite.

"The reason we're not in with more of the small guys is because we have to go out and sell to the small guys," Starkenburg says. "Our biggest impediment has been getting people knowing about what we do, but now we have a sales force who are able to that."

PRODUCT: Facial animation services

COMPANY: Image Metrics

PRICE: Various, available on request

CONTACT: +44 161 242 1800

www.image-metrics.com



Top left:
Kevin Walker, CTO,
Image Metrics

Top Right:
Michael
Starkenburg, CEO,
Image Metrics

Above:
Image Metrics
technology works
by deriving CG
animation from
video footage

How to get a great facial

Image Metrics' technology works by analysing video footage of a facial performance on a per-pixel basis to generate animation curves. These are matched to your production facial rigs and so can then be used to drive in-game cutscenes. And because the animation is matched to your rig and created in whatever art tool you're using, it can be seamlessly integrated back into the production pipeline.

Clearly the most important element to ensure the highest quality of the output is the quality of the original facial performance. Image Metrics says the quality of the video capture, whether the camera resolution or lighting conditions, usually aren't a major factor. Indeed, it's working on the possibilities of using webcam footage.

The other important element, however, is the quality of the facial rig the animation is applied to. "We've had to become experts at creating rigs in order to be in control of our own destiny," says CTO Kevin Walker.

"Even though it's not a good way to make money, we joke that we should do more of it because, at the end of the day, it provides a better product."



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HEARD ABOUT

You're in the Movies

Crazy madcap pastiches of the last hundred years of cinema? **John Broomhall** goes in search of his 15 minutes of fame in Zoë Mode's latest party game...



THIS MONTH'S FEATURED SOUNDTRACK:

You're In The Movies

DEVELOPER:

Zoë Mode

PUBLISHER:

Microsoft

AUDIO TEAM:

Audio director: Ciaran Walsh

Sound design: Nathan McCree, Dan Millidge, Joe Hogan, Justin Scharvona

Original music: Richard Jacques

Dialogue direction: Nathan McCree

There's no business like show business – especially when you're creating a videogame that makes stars of all who play it.

You're in the Movies is a multi-player party experience where up to four people compete in a series of short mini-games featuring camera-based gameplay. The game's video tech cleverly separates them from the background so it can place them in all manner of movie scenario backdrops.

An off-screen director coaches players through creating short action close-ups which after gameplay, are composited on the fly into set-piece movies. In the game, you might have been punching a target. In the end movie, you might be punching a monster. A quick YouTube tour of people's hilarious uploads of themselves saving the planet, vying with vampires and such, amply demonstrates how entertaining and technically accomplished this game is.

For audio director Ciaran Walsh, such a prize did not come without some significant challenges. "Each movie is a collection of short video clips – over 600 shots in all – which we spotted like a continuous linear piece of video for each movie, rendering out individual pieces of associated audio," he says.

"Making sure they would all glue together was a headache. We used a database system and gave every clip a lead-in and tail to enable cross-fading and more creative freedom in the run-time editing. Continuity was a key issue – for instance, an alarm sounding continuously across several shots each with a different camera position.

"Dialogue-wise, things were more straightforward and, luckily, the main director character for the mini-games was cast very early – actually an excellent placeholder voice which stuck – meaning the writers got to

know his voice and wrote specifically for his character. For the movies, it was all about trailer-guy voices – both the obvious deep modern-day cliché as well as the retro B-movie monotone bellowing."

The main problem that the team hit was something that it managed to turn into a

“There's a lot of humour in the music. Richard Jacques really buzzed off the brief, you can tell.”

Ciaran Walsh, Zoë Mode

positive: "The movie pastiches requires vocalisations – screams, grunts, crying – but we didn't know the sex of the player. So we decided to try gender-ambiguous vocalisations – pitching them somewhere in the middle – but our discomfort with this concept was instantly dispelled following implementation. It was just one of the funniest things we'd ever heard."

There was another humdinger to face, however: finding the right composer and music producer to create 204 music cues (about 90 minutes running time), and attaining top quality production values without breaking the bank, and in less than four months. Oh, and the music content had to cover big-band Hollywood glitz for the main game, plus a plethora of genre pieces encompassing a hundred years of cinema, from rag-time piano through to modern electronic and orchestral action scores.

"With such diverse music requirements, the composer shortlist was very short," says

Walsh. "I'd worked with Richard Jacques before and knew if he said he could deliver, he would – essential with a tight timescale. We worked closely together to sell the recording budget to the purse-string holders. I believed very strongly from the outset that we needed real musicians and live recording and would get a badly compromised result if we didn't – that's not always the case but clearly was in this instance. It was a challenge for Richard to create a score which would be used in multiple ways – the music you hear in the scripted movies following play is kind of edited off-line from a toolkit of musical elements devised for each genre, but is also used elsewhere.

"In director mode, where players can make their own movies, they have a choice of 'music suites' which the game combines interactively with their shot sequence. Shots are tagged with intensity values with the system looking ahead to work out transitions and trigger stings.

"The music really captures the essence of each genre with the authenticity I'd always hoped for. Contributing to that is also the fact that we used vintage mics and mic placements alongside the more modern set-ups. The main recording session at Metropolis Studios, both big band and orchestral, was an amazing experience. The players were outstandingly good – rattling through this complex stuff at an incredible pace, note-perfect. There's a lot of humour, character and love in the music. I think Richard really buzzed off the brief, and you can tell."



Zoë Mode's audio director Ciaran Walsh



John Broomhall is an independent audio director, consultant and content provider
develop@johnbroomhall.co.uk
www.johnbroomhall.co.uk

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UNREAL ENGINE 3 DRIVES THE WHEELMAN

The following is an excerpt of a story written by John Gaudiosi for www.unrealtechnology.com

Vin Diesel's next adventure won't be seen on the big screen. The action star is appearing as Milo Burick, an undercover cop out to infiltrate the gangs of Barcelona in *The Wheelman*, Midway's collaboration with Diesel's Tigon Studios – and it's being fueled by Unreal Engine 3 technology.

Shaun Himmerick, executive producer of *The Wheelman* at Midway Newcastle, said that it's been great utilizing UE3 for the action driving genre. The game is part of a cross-company shared technology endeavor that Midway employs in each of its global studios.

"With an open world game, there is both driving and on-foot action, so we borrowed designers from the *Stranglehold* team to help us," added Himmerick. "While it's a challenge to put every studio on a common engine, it makes it easier to share the technology."

The Wheelman's virtual Barcelona is a massive city with over 4,000 miles of roads, including back alleys that can only be navigated by motorcycle. One of the hurdles the team tackled was streaming the virtual city on console. Himmerick said that UE3 was built to stream on-foot action, which might cover ten feet per second, but his team needed the engine to accelerate up to 150 miles per hour for speeding vehicles.

"To build an engine that can stream the equivalent of a first-person shooter map

every eight seconds was a massive challenge," he said. "We used a lot of core Unreal technology, and we also added a lot to it, like Kynapse and the Havok engine."

In addition, the team modified toolsets within UE3 like Matinee, which was revised and referred to as the cinema tool by the team. That technology was originally designed for *Stranglehold*, another UE3 game, but was customised for *Wheelman*. At its base, Midway used the stock Matinee engine and then added bolts onto it. The end result provided specific functionality that enabled the team's cinema group to precisely manipulate the cameras within the game world for the desired cinematic feel.

"We have something called super mesh, which allows for more variation of character than the Unreal Engine normally lets you do," continued Himmerick. "For us, it enables us to do more damage to cars. Super mesh doesn't work out of the box with Matinee, so we had to hijack the in-game car and pull it into our cinema engine to ensure a clean transition."

One innovative idea that came from conversations with Vin Diesel was to create car combat in the vein of a fighting game. Instead of bumping into another car over and over again, the game employs melee combat like punches that can knock out enemies immediately and dramatically. *The Wheelman* also has a super move that allows the driver to spin 180 degrees, blast his enemies with guns, and then spin back around. Himmerick

said all of the action is captured with very cinematic camera perspectives.

The game also lets players exit vehicles and engage in gunfights and exploration. Cars will come in handy as shields from bullets, but well-timed shots can also blow up vehicles and take out multiple enemies.

"Unreal has given us a great starting point," explained Himmerick. "The file structure, the way it's organised, and the fact that it was all done with the infrastructure that we were familiar with has allowed us to easily modify what we need, like the cinema tool, and then share it among all of the studios."

With fast and furious action, *The Wheelman* will allow anyone to step into the starring role and take down the bad guys by any means necessary.

The Wheelman for Xbox 360, PlayStation 3 and PC

UPCOMING EPIC ATTENDED EVENTS:



Game Developers Conference

San Francisco, CA
March 23rd - 27th, 2009

Triangle Game Conference

Raleigh, NC
April 2th - 30th, 2009

Electronic Entertainment Expo

Los Angeles, CA
June 2-4, 2009

Please email: mrein@epicgames.com for appointments.

To discuss anything raised in this column or general licensing opportunities for Epic Games' Unreal engine, contact: mrein@epicgames.com

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Mark Rein is vice president of Epic Games based in Raleigh, North Carolina. Since 1992 Mark has worked on Epic's licensing and publishing deals, business development, public relations, academic relations, marketing and business operations.
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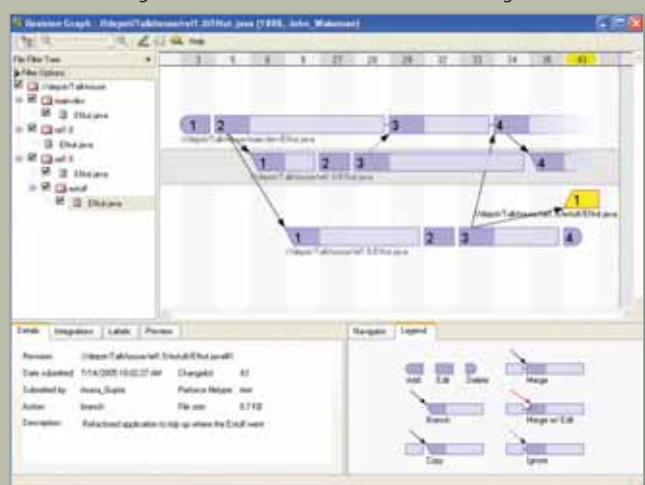
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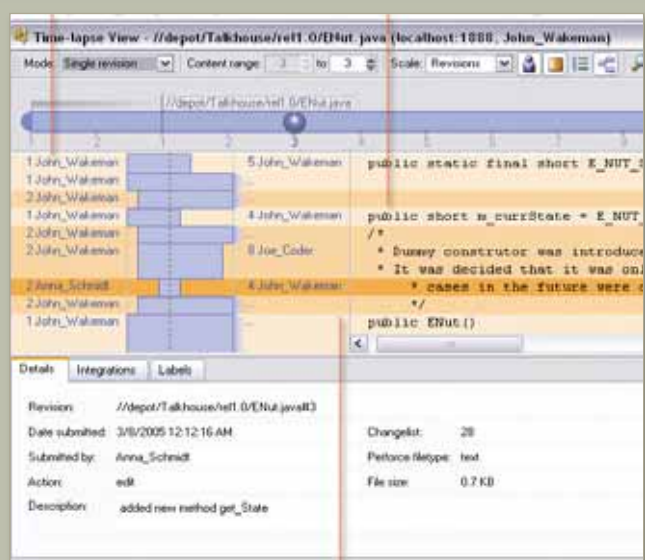
With 14 years experience and a large number of game studios using its tools, Perforce has gained huge experience in how successful developers like to work and how Software Configuration Management tools need to support them. Here, **Dave Robertson** shares seven of the top features of Perforce which help for game development...



Above: The Image Diff Tool shows differences between image files



Above: The revision graph shows a file's change over time



Above: Perforce's Time-lapse View shows a file's history

1. Revision Graph

The revision graph tool means you can easily view changes over a period of time, which is useful for fixing bugs. To diff, right click on the file you want to diff and select the 'revision graph' function (Ctrl + Shift + R).

2. Thumbnail view

Both P4V (the multi-platform GUI) and P4Web (the browser-based client) can show thumbnails of images stored in the server, and new thumbnails are automatically generated for new assets if required. This functionality can also be easily extended to support any file type you need to visualise in this way. To view the thumbnail, click on the file in the depot and then select the 'preview' tab in the menu on the right.

3. Time-lapse View

Time-lapse View shows an interactive visual representation of a file's history, showing when lines were added, changed, and deleted, who made the changes, and when the changes were made. Right click on the file you want to diff and select the 'Time-lapse View' function (Ctrl + Shift + T). The slider at the top allows you to browse rapidly through file revisions with the revision, date, description, user and changelist number displayed at the bottom of the page.

4. Branching

Bad experiences with other tools have, unfortunately, taught many developers to be wary of any sort of branching. We frequently hear of companies who avoid branching altogether because of the pain they had with merging in these other tools. Perforce's branching, however, is easy. You can use branches for milestones and never wonder what went to the publisher again.

A good branching model also removes the need for lost developer time with code freezes. Perforce's inter-file branching and built-in conflict detection lets you easily branch and merge between codelines. Branching is a simple process: select the folder you wish to branch, then right click select the 'integrate' function. In the new window change the target path to where you want the folder to be copied to. You can also name the branch using the branch tab. Then you can either preview the branch first by clicking preview, or branch by selecting integrate.

5. P4 Merge

During game development you may often need to work concurrently on a file. When submitting the file P4V will indicate if there are any conflicts, and if there are you can use the Merge tool to resolve them.

The Perforce Merge Tool, P4Merge, provides graphical three-way merging and side-by-side file comparisons. Perforce client applications can also be configured to work with third-party merge tools. To use the merge tool, select the merge tool option; you will then be shown the original file, the edits you have made and the edits of the other user.

6. Diff tool

Perforce's diff tool makes it easy to compare two versions of a file. This can be particularly helpful when working on multiplatform game development. To diff, right click on the file you want to diff and select Diff Against (Ctrl + Shift + D). You can then either select another revision of the file to compare against or a different file to compare against.

P4V will then launch P4Diff, which visually displays the differences between the two files. Artists can use the Image Diff tool to compare two graphics, which supports most common image files, including TIFF, JPG and GIF, and can be extended to support other image formats through the Qt API.

7. Link bug reports with changes

In an ideal world there would be no bugs, but this is far from an ideal world. When time is everything in those critical months before a release, comprehensive defect tracking is essential. Producers need to stay up-to-date with instant reports on open/closed bugs by project.

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Dave Robertson is vice president, international at Perforce Software

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Sound of the underground

Crackdown creator Realtime Worlds has adopted forthcoming title APB, claiming it will help them high-end audio experience. **John Broomhall** gets

Audiokinetic's SoundSeed Impact for its hotly-tipped achieve the convincing variation required for a ready to play cops and robbers...

SoundSeed is a family of interactive sound generators for Audiokinetic's Wwise that use DSP technology to greatly reduce memory usage and enable rich dynamic audio content. By creating an unlimited number of variations from a single 'footprint' sound, SoundSeed Impact, the first family member to emerge, enables audio developers to get miles more variation for resonant sound effects without munching memory or blowing budget.

Realtime Worlds believes there is no longer any excuse for a lack of audio variation.

"To paraphrase George Sanger – 'repetition is bad, repetition is bad, repetition is bad,'" explains audio lead Roland Peddie. "We believe repetition reduces the believability of the game world you're in. The ear is so sophisticated – it can pick up on any lack of variation and induce listener fatigue."

All of which is out of the question for RTW's exciting new title, *All Points Bulletin* (APB), a 'control the city'-style community game where players can either take the role of the criminals or of those bringing them to justice. Founded by development legend David Jones, Realtime Worlds' talented team created the five-times BAFTA-nominated *Crackdown*, which went on to win two of the coveted masks – including one for audio. APB promises to be the first massively multiplayer online title where player skill determines character progression, and is arguably one of the largest and most ambitious independent game projects on the planet right now.

PLANTING SEED

With player-versus-player combat at its heart, the audio team are applying SoundSeed to a plethora of interactive 'props' – dumpsters, newspaper racks, telegraph poles, dustbins. In their words, 'stuff you can knock over'.

"We initially tested it on prop impacts; metallic resonant stuff just like they suggested, and then tried to stretch it a bit further," says Cowie. "It's a great thing they're innovating – a cool piece of technology and another tool in the kit."

APB
ALL POINTS BULLETIN

SoundSeed
growing audio



APB doesn't just feature edgy punks like this – it features cutting-edge technology for audio

Given that audio production was well underway when the team started evaluating SoundSeed Impact, a good deal of the prop recording work had already been done.

So why use SoundSeed? Cowie explains that it was a pre-emptive move for the dreaded optimisation sweep: "The approach we've taken so far has been – let's just get assets into the game. The amount of memory we've been using hasn't been the main priority, but it will become so. SoundSeed will enable us to retain a lot of variation that might otherwise have been lost in the optimisation phase."

"But there's more to it than that – using Wwise has changed the approach that we'd have previously used anyhow. Now we have 'blends' containing soft, medium and hard impacts, controlled by a collision intensity real-time parameter control (RTPC). SoundSeed will really max out the variation making the audio even better. It could also reduce the amount of pre-baked variations needed in each of those collision intensities."

“Using Wwise has changed the approach that we'd have previously used. SoundSeed will really make the audio much better.”

With Realtime Worlds already building in sound variation the traditional way, Cowie agrees that by adding SoundSeed to Wwise's existing methods of randomisation a far higher degree of variation can be achieved.

Clearly, not every game audio developer finds themselves in this rarefied atmosphere, and for those who don't, Peddie still believes that the tech can deliver a reduced memory footprint and significant time savings. "An audio developer relying more on library material without the budget to record as many variations as they like could save a load of time and money and memory – and still maintain good quality. It could have a significant impact."

When contemplating a future project where SoundSeed is built into the equation from the outset, Peddie and Cowie reckon it

would have a distinct influence on their methodology.

"Take a metal pole – you can hit it maybe four or five times and it all sounds similar, but you end up using six variations anyway," explains Cowie. "That's a case where you'd say let's just use SoundSeed which can actually get more variation. Then there's items that when you hit them, they break – you only have one shot at recording that, so SoundSeed would be really useful."

Peddie agrees: "I think you might approach a few things a little differently – like if you know you're recording something with a lot of resonance, you might not bother about trying to get variations – SoundSeed would do it for you."

"Actually knowing it's there would always have an effect on anything you know it might deal with," says Cowie. "As a first port of call we'd maybe try using SoundSeed for a sound type. Does it work? Does it come up to the standard we'd expect? If yes, then go with it. If not, then maybe record more variations."

Given the pressing need of audio variety in

some interesting stuff. People are always looking for new ways to create original sounds so any new tools that can possibly do that are always welcome."

SOUNDSEED SPROUTS

Cowie and Peddie are enthusiastic about Realtime Worlds' overall choice of Wwise middleware for APB and the level of support they receive from the Audiokinetic team.

"For me the choice was mainly about the amount of control and scope for creativity it gives sound designers, minimising the support required from in-house software engineers. It's well designed and

implemented. Interface-wise, everything's laid out really clearly and technically integrating it was quick and easy. I think it's great," says Peddie.

Cowie concurs and cites improved workflow:

"You end up with a closer result to your overall aim – the creative side of things flows a bit more. Being able to control the RTPCs is great – we can go do our thing and spend however much time we need tweaking and testing in real-time. It makes a huge amount of difference and it saves a huge amount of time. The profiler was a completely new thing to me – it's something I use pretty much on a daily basis to cut the amount of time spent tracking down what's actually happening. With so many sounds coming back from the game, it's very useful to capture all the information, stop and scroll back through all the data. And it's robust."

Just talking to the Realtime Worlds guys briefly gives the clear impression that they believe synthetically generating and extending sounds to be a part of game audio's future – and something they're now equipped to embrace.

www.audiokinetic.com
www.realtimeworlds.com

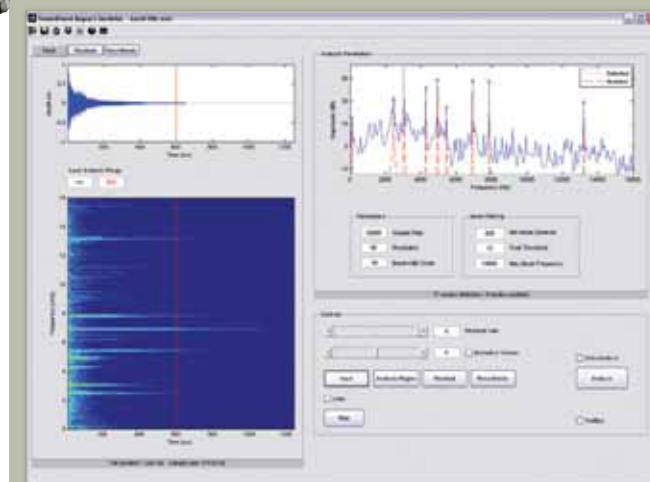
today's triple-A games, whether you're on a limited audio budget or blessed with an open cheque book, Audiokinetic believes that SoundSeed can yield tangible benefits to all developers including that all-important memory reduction.

Meanwhile, the SoundSeed Impact Modeller application enables sound designers to experiment with the creative potential of mixing and matching different parametric models and residual files, a prospect that the Realtime Worlds team finds interesting.

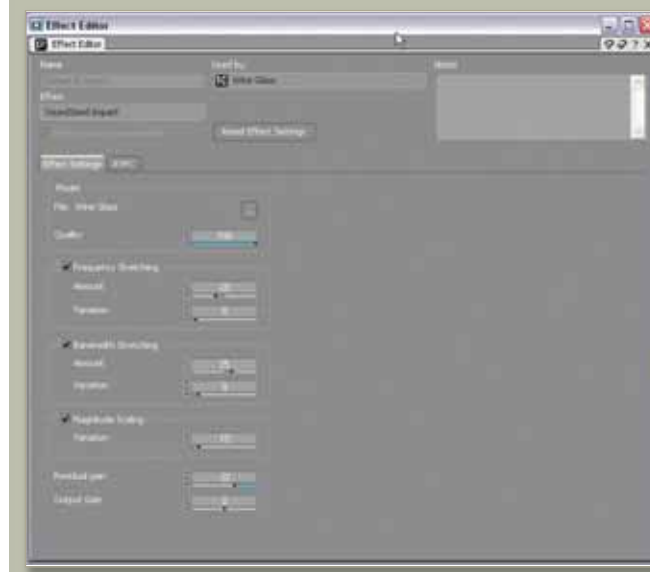
"It's something I'd like to try," enthuses Peddie. "Maybe mixing the residual sound of a gunshot with a sword impact – you could create



Cowie (left) and Peddie (right) agree that implementing Audiokinetic's Soundseed has improved the audio in APB



Realtime Worlds' audio team say Soundseed's workflow and effects functions make it a worthwhile addition for the production of APB



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Studio News

This month: Relentless, Zoë Mode and Ruffian



Brighton-based **Relentless Games** has hired three new employees.

Paul Abbott (*pictured - right*) has joined the team as a dedicated environment artist. Abbott brings experience as both a freelance illustrator and as an artist for Creative Assembly. The new staffer previously worked as lead environment artist on *Viking*, having graduated from his fine art painting degree course at Brighton University.

Alex Crowhurst (*pictured - left*) fills an animator role at Relentless, having worked with Free Radical Design animating in-game assets and cut-scenes on titles such as the *Timesplitters* series and *Second Sight*. Alex graduated from the Arts Institute at Bournemouth in 2001 with a degree in film and animation. Crowhurst also contributed to *Heavenly Sword* before joining his new employer.

Finally, James Burford (*pictured - centre*) joins as a QA tester from Testology, where he was a contract games tester on an online only FPS. Burford graduated from Portsmouth University in 2007 with a BSc in computer games technology.

www.relentless.co.uk

Zoë Mode has opened a recording studio and post production facility at its new Brighton premises.

The studio is fully equipped for surround mixing and music mastering and hosts multiple interconnected recording and production spaces.

"Moving into our new permanent home last October gave us a perfect opportunity to design and build audio studios tailored to our unique needs as a music game developer, and to provide professional audio services to other Kuju studios. We're delighted with the result," said audio director Ciaran Walsh.

General manager Ed Daly added: "Investment in our facilities enables us to provide a comprehensive service to our publishing partners and increase the quality of audio in our games."

Zoe Mode has recently created several music themed games, including *Disney Sing It!* and the soon-to-be-released *Rock Revolution*.

www.zoemode.com



Ruffian Games has hired two industry veterans to bolster its design department.

Steve Iannetta (*pictured - left*) and Ed Campbell (*pictured - right*) have joined the Dundee developer as lead designer and senior designer respectively.

Initially establishing himself as a graphic designer, Iannetta entered the games industry when he joined VIS in 1996 and has since worked with Realtime Worlds and Midway. Iannetta has previously held a number of key roles including senior mission design on Microsoft's *Crackdown*.

Meanwhile Campbell brings over 20 years of experience to Ruffian, having begun his career working on cult 16-bit titles like *Zool 2*. More recently Campbell has contributed to high-profile games like *NARC* and *Crackdown*.

"We're delighted to have these guys on board," said Ruffian studio head Gaz Liddon. "We only want to make the very best games and you can only achieve that through great design. Steve and Ed joining is another step towards that goal."

www.ruffiangames.com



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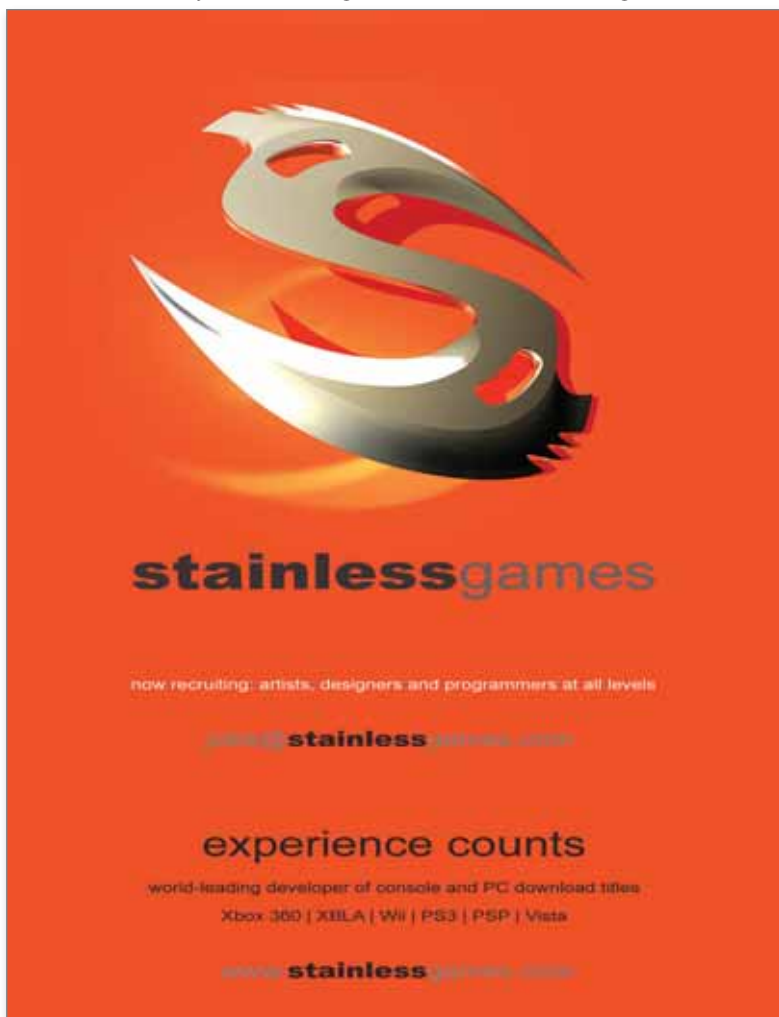
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Tools News

Epic Games China adopts Hansoft

Epic Games China has adopted Hansoft's project management and QA solution.



"Hansoft is ideal for game industry development because it provides flexibility for shifting priorities and goals through highly intuitive and usable interface design," said Mike Hines, project director at Epic Games China.

"The ability to easily manage resources for projects, customise the production style and views per project and user, and quickly see resource conflicts, workloads and costs continues to impress me daily."

Epic Games China licenses the parent company's Unreal Engine 2 and Unreal Engine 3 in China, Taiwan, Hong Kong and South East Asia. Meanwhile, Hansoft provides a fully integrated production management solution that is now used in over 20 countries for bug tracking, project and workload coordination.

www.hansoft.se

Trinigy to support new start-ups

Middleware firm Trinigy has announced a new programme to support fledgling developers.

According to the company, the tough economic climate is causing developers to regroup and start new companies in the wake of extensive lay-offs at established firms. As such, Trinigy will be extending the trial period for its Vision Engine from 30 days to three months, in order to help teams make a prototype and secure publisher funding.



"With all the economic issues going on right now, we felt that it is time to close ranks and proactively back game developers," said Daniel J. Conradie, president & CEO at Trinigy US.

"Thus, we took the initiative and initiated ESP. We've received overwhelming responses from veteran teams and we are glad to make ESP publicly available now."

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Tool Spotlight

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Area of Expertise: Weather simulation

Developers can now produce dynamic, convincing skies, thanks to Simul's new Simul Weather technology. Vibrant weather systems can be implemented into games on all current console and PC platforms.

Simul Weather is a C++ library that generates climate data that it updates in real-time. The SDK can be used to launch in-game weather into a troposphere, creating volumetric cloud data via a lightweight API. The sample applications that come with the SDK show how real-time clouds can be rendered using generated data through various graphic APIs.

Simul Weather can also be used to generate live, moving panoramas



thanks to a system that also allows users to render the sky at the start of each level. Additionally, the Simul Weather SDK is compatible with Simul's CloudWright skyscape creation technology, meaning developers can test settings to see how they'll look in their own render.

A demo is available now on the Simul website, which can show how the clouds move and animate as time passes. The taster allows those interested in the technology to manipulate wind speed and direction, cloud density and a number of other factors representative of the API.

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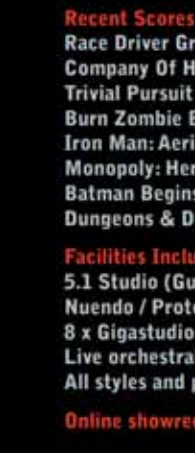
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Services News

Side provides full performance capture for Killzone 2

To ensure that *Killzone 2* featured realistic and convincing in-game characters, developer Guerilla enlisted the services of production company Side.

Using its location audio rig in a two thousand square

foot sound stage, Side cast actors with distinctive voices and the physical agility required for full performance capture. The enormous audio space and Side's technology enabled the synchronised recording of both the dialogue of multiple actors and the motion capture data.

For the recording process, Brian Cox visited Side's facility to reprise his well-received role as *Killzone 2*'s Sclor Visari.

"The technique of full performance capture really helped to achieve the frenetic, dynamic dialogue of this action-packed title," said Side's creative director Andy Emery.

Side is an award winning company providing creative services to the game, film and broadcast industries. Side offers casting, directors, composers and a range of audio services including dubbing, mixing, sound design and location recording.

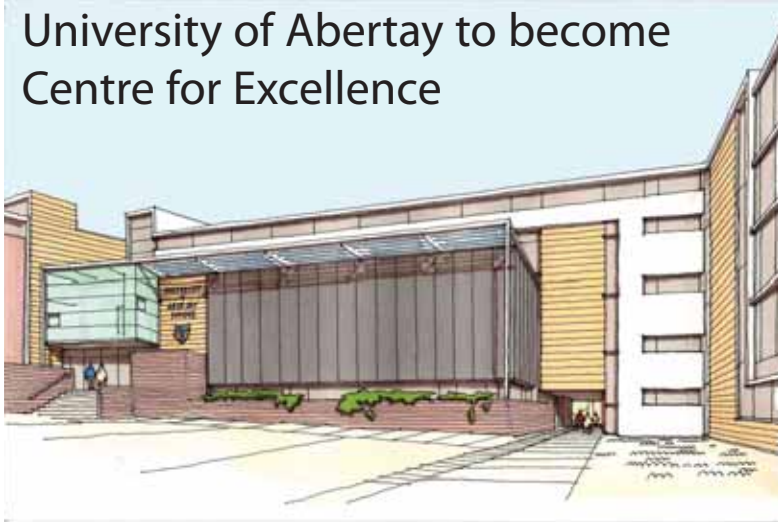
Recent Side projects include *Fable II*, *LittleBigPlanet*, *Star Wars: The Force Unleashed* and *Tomb Raider: Underworld*.

www.side.com



TRAINING NEWS

University of Abertay to become Centre for Excellence



A £3 million investment from the Scottish Government will help the University of Abertay Dundee build what it has described as 'the first UK Centre for Computer Games Excellence'.

Abertay University is already widely regarded as one of the best universities in the UK for studying games development given that it runs two of the now five Skillset-accredited courses for gaming studios. The university is also responsible for the Dare to be Digital competition, and last year won a Develop Industry Excellence Award for its contribution to education in the UK.

With the new investment Abertay will develop two new industry designed postgraduate MSc courses dedicated to games – plus a teaching and learning space to accommodate them, pictured above.

The masters programme will be based on Dare to be Digital, with 40 graduates housed in a purpose-designed professional environment for a 12-month course.

It is hoped the course will help create actual ideas for both games and serious games-style software with real world application.

Abertay's principal and vice-chancellor Professor Bernard King said: "This significant capacity-building investment by the Scottish Government establishes Abertay as Scotland's University Centre of Excellence in Computer Games Education. It recognises that Scotland can be a global leader in this sector, and that Abertay can drive that ambition by providing graduates with the necessary world-class skills to succeed."

www.abertay.ac.uk

Hull's games course gets Skillset accreditation

The University of Hull has become the first English educational institution to receive Skillset accreditation for its Masters course in Computer Games Programming.

The course, which is backed by developers such as Black Rock and Blitz Game Studios, was established 1996 and is the longest-running course of its kind in the UK.

The accreditation means that the course's contents have been validated by the Skillset board, which includes representatives from various developers including Frontier's David Braben.

"We are delighted to have been the first English institution to have been recognised for our prestigious Computer Games Programming course," said the Masters program's leader Dr. Jon Purdy.

"The success of our graduates speaks volumes about the high calibre of students we attract and the level of teaching we provide. The major computer games companies come to Hull each year to identify potential employees; they know that the standard here is particularly high and every year a number of our students are given job offers on the spot."

www.hull.ac.uk

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For more quotes from ex-students, examples of student work and syllabus information please visit www.msccgames.com.
PhD and BSc study also available.

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MY FAVOURITE GAME



I LOVE... LEMMINGS

by Sonic The Hedgehog creator Yuji Naka

“ There are a lot of Western games that I've taken influence from – in particular, I like *Lemmings*. It might just be a personal thing, but having hundreds of different characters moving around, all doing different things, really fascinated me back then.

I think *Lemmings* is a big reference point in terms of character development too – the way the lemmings work is kind of based on the real animal, like the idea of the mass suicide – although that's just a myth – but it defines the character.

I did a similar thing with Sonic – I thought that hedgehogs can't swim, so I made it so that water was dangerous to him. But then I saw a photograph of a hedgehog swimming, and that really surprised me. It turns out that they can swim, but they can't crawl out of the water. ”

develop FORWARD PLANNER

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Legal special, GDC review
Copy Deadline: March 19th

JUNE 2009

Game Engines
Event: GameHorizon conference
Copy Deadline: May 21st

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